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ABSTRACT

The means of providing inexpensive educational facilities for early childhood care and education are presented in this report, which attempts to increase understanding of functional requirements and resource constraints. Contents include a discussion of child development relevant to physical facilities and specific accommodation requirements for care (health and nutrition), education, and management (personnel and supply). The final chapter offers innovative strategies for assimilating these components in an early childhood development center and suggests how these alternatives can be matched with available resources. References accompany each chapter. Fifty figures contain examples of facilities from different countries. (LMI)

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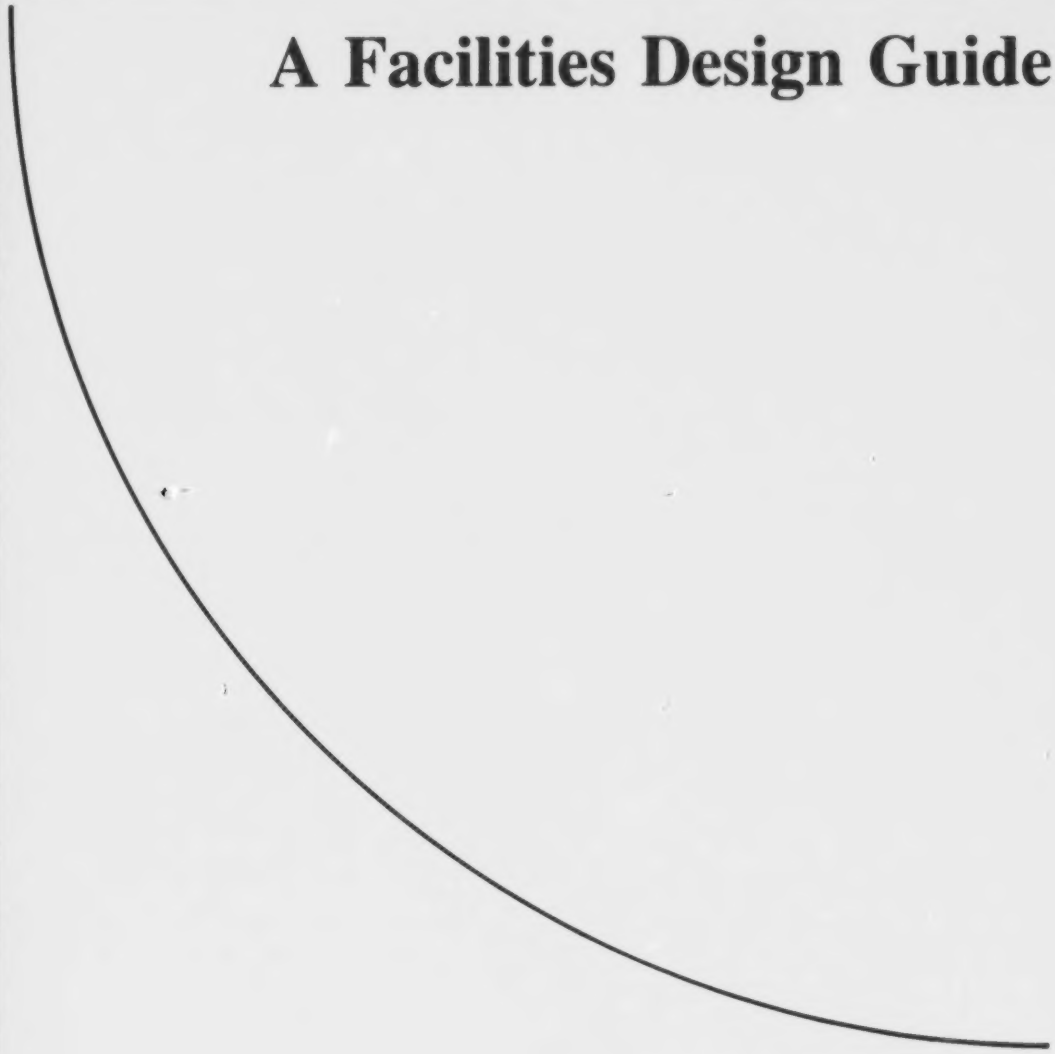
Educational buildings and equipment 10

A Facilities Design Guide



David S. Vickery

ED-88/WS/60

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PREFACE

This Design Guide has previously been published by the Unit for cooperation with Unicef and WFP as Digest n° VI: "A Facilities Design Guide" (1984) as part of their Digest Series "Notes, Comments... (Child, Family, Community)".

The present edition is published due to its high demand.

Paris, 28 November 1988

AUTHOR'S ACKNOWLEDGEMENTS

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I

INTRODUCTION

The provision of housing for early childhood care and education (ECCE) depends, of course, on clear understanding of functional requirements. The first five Digests in this series discuss ECCE in detail and, from them, are drawn those aspects which have specific implications for accommodation.

SCOPE

It will be evident from the earlier digests too, that the resource constraint is of over-riding importance if ECCE programmes are to expand and develop. Such expansion is unlikely to take place unless the buildings chosen reflect the true resource position.

In countries still struggling to finance expansion of primary education, it is improbable that governments could provide new purpose-built early childhood centres for a large population of children aged 0 to 6 years. Fortunately there are a number of initiatives that have been taken which show that, by and large, such provision is not necessary.

The development of home-based early childhood projects, the use of existing, underutilized community facilities and the construction by the communities themselves of simple early childhood centres offer alternatives which, if they can be encouraged, will enable ECCE programmes to

develop - as long as they can be matched by the inputs needed for recurrent expenditure.

Reflecting this state of affairs, the present Digest focusses on how to provide no cost/low cost facilities and also gives in a somewhat lower key, information likely to be useful to those lucky enough to be able to design purpose-built facilities.

STRUCTURE

In its arrangement, the Digest discusses the child and those aspects of child development relevant to physical facilities such as age/height relationships, posture and so on. This will assist in getting the right scale for furniture and the right heights for fittings.

Succeeding chapters examine separately the specific accommodation requirements for care, such as health, nutrition, etc., then development through play and the spaces and furniture needed for this. Provision for the staff and others concludes this examination of needs.

The final chapter discusses how these components can be brought together in an early childhood centre and, more importantly, how alternatives can be matched with resources.

Each chapter is provided with references, but, in a national situation, it will always be found useful to consult national building research stations on ways of improving the useful local materials and building practices which is so strongly recommended in the last chapter.

II

BASIC FACILITIES FOR CARE, EDUCATION AND MANAGEMENT

INTRODUCTION

While, in reality, the Care, Education and Management aspects of ECCE Programmes are interwoven, in attempting to identify basic facilities needs, it is convenient to consider them separately.

The 'care' component of ECCE programmes relates to:-

- health
- nutrition
- safety and,
- the comfort of the young child.

The 'education' component relates to:-

- intellectual and social development and,
- physical development.

'Management' in the sense of planning and implementing various forms of ECCE - whether formally or informally - is an increasingly important component as parents, community members, siblings and others are drawn into the care and education process. The component thus relates to:-

- personnel
- supply.

FACILITIES FOR CARE

As discussed in Digest No. III, malnutrition and accidents are major obstacles to the normal intellectual, social and physical development of the young child. Malnutrition itself renders the body susceptable to diseases

and the child is, in addition, subject to endemic diseases. In many countries, up to half of the children participating in ECCE programmes at any given time will be sick, some with diarrhoeal infection, some with respiratory infections such as whooping cough and several with measles. While many children will be healthy, most will average 160 days a year of sickness. Thus health care is a major concern.

Many aspects of the Care component of ECCE programmes should find direct reflection in the physical facilities as suggested below:-

- health — source of potable water; washing/bathing facility; sanitary toilets; separation of the healthy from the sick; access to primary health care.
- nutrition — space for food preparation; safe food storage.
- safety — hazard-free areas for children's activities.
- comfort — acceptable shelter in relation to ambient climate, adequate light; freedom from unacceptable sound.

Two important points are made here. First, if any of the above facilities are not provided, then there is risk of vitiating the Care component of the ECCE programme. Secondly, it will be noted that the facility requirements are couched in very general terms. This will allow the facility to be provided in any way that resources permit - a topic to which the text reverts below in 'Resource-related options'.

FACILITIES FOR EDUCATION

Education, some think, is a misnomer for that component of ECCE programmes which deals with the development - intellectual, social and physical - of the child from birth to the age of entry to primary school.

Certainly few of the activities bear any relation to the image of formal schooling with its classrooms, desks and chairs. Development in any of the three areas mentioned above will depend fundamentally on the activities that are planned and on the way in which the 'teacher' reacts with the child to achieve the desired objectives. Physical facilities can help to make development easier to achieve and, to that extent, are of some importance. The way in which the child develops is through play. Play encourages language development; it promotes physical growth; it helps the child to discover the social rules and is, in short, the basic instrument through which competencies and knowledge are advanced.

Space for play is thus of critical importance

- intellectual/social/ physical development	a variety of spaces of different sizes juxtaposed to facilitate holistic activity; storage for equipment.
- physical development	scale of spaces, building components, furniture adapted to body sizes of children and stages of gross and fine motor development.

As with Care, above, failure to meet the physical requirements will make programmes difficult to implement. And as with Care, there is no resource implication. The small verandah of a house with an adjacent garden may as well provide the variety of juxtaposed spaces required as a much more expensive purpose-built facility.

FACILITIES FOR MANAGEMENT

The early childhood 'centre', be it a neighbourhood house, a community centre, an unused or under-utilized building in the locality or a purpose-built establishment,

is increasingly the focus for a variety of adults. There will, of course, be the nurse, nursing aid and teacher (who may, also be a mother). Increasingly participants may include parents, siblings, other relations as well as community members who may help at the 'centre'. The 'centre' will often be the site of simple, short courses to train mothers and helpers; health visitors will come from time to time and, in the larger centres, a health clinic may serve the children participating in ECCE programmes as well as provide treatment for their older siblings and parents

In short, the early childhood centre has to provide simple facilities for limited numbers of adults as well as for the children. If it does, community participation will be further encouraged.

- *personnel*	*sanitary toilets; space and furniture suitable for a few adults.*
- *supply*	*storage, e.g. for books/ papers, raw materials for making equipment.*

As with 'Care', above, provision of these facilities will promote smoother running of ECCE programmes. The facilities may range from a couple of chairs and a storage box in a small centre to staff rooms, offices and stores in a large, purpose-built institutions.

RESOURCE-RELATED OPTIONS

In the preceding sections an attempt has been made to identify those physical facilities which are essential to the success of ECCE programmes. At the same

time, it has been emphasized that the nature of the facility provided is always to be related to the resources available.

There is now a considerable body of evidence concerning the capital costs of ECCE programmes, much of it drawn from experience gained through provision of purpose-built, early childhood centres.

The most significant fact is that, because an early childhood centre requires more facilities than a primary school by way of food preparation, toilets for bathing the very young, safe, fenced areas and a variety of spaces for a relatively small number of children, the area per child place, and thus the cost, is always higher.

The areas of purpose-built early childhood institutions can usefully be compared with those of other educational institutions as follows:-

Early childhood centres in, for example:

Hungary (80 places)[1]	- 16.28m^2/Place	average= 11.18m^2/Place
Vietnam (270 places)[2]	- 10.48m^2/Place	
United Kingdom (60 places)[3]	- 7.50m^2/Place	

Primary schools - commonly 1.5 to 2.5m^2/place

Secondary schools - commonly 3.5 to 4.5m^2/place

Higher education - commonly 14 to 20m^2/place.

It is evident from the above, that purpose-built facilities for ECCE are likely to be among the most costly institutions in the education system - costly, not only in respect of capital expenditure, but, having low staff/student ratios, costly in recurrent expenditure too. Small wonder that, in Asia, for example, the largest national ECCE programmes based on purpose-built facilities, reach or are intended to reach no more than 30 per cent of the children. Such heavy per place costs make it virtually impossible to extend programmes of this sort to all of the child population aged zero to six years.

It is not without irony that, in the efforts to find alternative approaches to the formal purpose-built institution, educators have shown that simpler arrangements may well prove to be more effective, both in respect of care and of the development of the child.

CO-OPERATIVE CHILD CARE HOMES WITHIN COMMUNITIES, organized and administered by parents and neighbours with help and advice from the state in matters such as curriculum, training and equipment design, have helped to widen and improve pre-school care and education in Colombia[4], similar sorts of home/community-based ECCE programmes are to be found, for example, in Brazil, Ireland, Israel, Malaysia, Mexico, Nicaragua, Peru, Spain, Venezuela, India and Zimbabwe.

The community and the home are perhaps the most important agencies in ensuring the 'seamless' development of the child from birth to primary school age. In this environment, it has been said, these are all the resources the child requires for developing competencies corresponding to new development needs. Such mobilization of resources reduces costs in an amazing proportion, and places pre-school education in the context of national traditions and daily life rhythms of common people[5].

Thus, there are a variety of ECCE programme options which can in terms of physical facilities, all have their functional requirements met in different resource-related ways; no cost, low cost, high cost. Details of the ways these requirements can be satisfied in such varied situations forms the subject of subsequent chapters.

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4. Unesco, Co-operative child care within the community: an innovative Colombian experiment concerning the pre-school age child. N.S. 60 Notes, comments series. Child, family, community. Unesco, Paris, 1981. See also Digest IV by Veda Prakash.

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III

THE CHILD: BASIC DATA NEEDED TO ESTABLISH A FACILITY FOR EARLY CHILDHOOD CARE AND EDUCATION

CHILDREN'S BODY SIZES

It is useful to have a rough idea of the body sizes of children of various ages for purposes such as deciding how many children can sleep in a given space; providing chairs and tables of suitable heights; arranging door handles, chalkboards, toy cupboards, sinks, taps and toilet facilities so that small children can use them easily; making boundary fences high enough to prevent the children getting over them; detailing steps small enough to be used by toddlers; and in general, providing a facility which matches the scale of the child.

The most important dimension is that of the standing height, measured from the floor to the top of the child's head. From this single dimension one can state with fair confidence, most of the other dimensions of the body which have significance for things such as seat heights of chairs, heights of table tops and so on.

Table 1 gives the length of the body or the standing heights for children aged six months to seven years. As most children do not stand erect enough to be measured until they are about two years old, children below this age have been measured lying down. Column 'c' gives a range of heights for each increment of age. Thus, for example, at 3 years the range is from 78 to 101cm. The big variation is due to a number of factors which include, first, ethnic differences and, secondly, within an ethnic group,

differences which may result from nourishment. It will be noted that the largest dimension for a 12 month old child, namely 79cm, is a centimetre larger than that for the smallest dimension in the 3 year group. Columns 'd' and 'e' give data for Asian and African samples. The Asian sample is described as 'mean' because it is an average for males and females. It is also based on a very large sample from the region. The African sample, likewise is a mean dimension for males and females but the sample size is fairly small.

In a specific design situation, better data can be obtained by measuring a sample of the children for whom accommodation is to be provided.

TABLE 1. LENGTH OF THE BODY (L) IN CMS.

MEASURED LYING/STANDING

Years of age	Months	'L' in Centimetres		
		International range	Asian mean (1)	African sample (2)
a	b	c	d	e
	6	56-69	-	-
1	12	63-79	-	-
	18	68-86	-	-
2	24	72-92	-	-
		above measured lying		
		below measured standing		
	30	75-96	-	-
3	36	78-101	-	-
	42	81-105	97	-
4	48	84-109	101	96
	54	87-113	105	-
5	60	89-116	107	102
	66	92-120	109	-
6	72	95-124	113	110
7	84	-	115	116

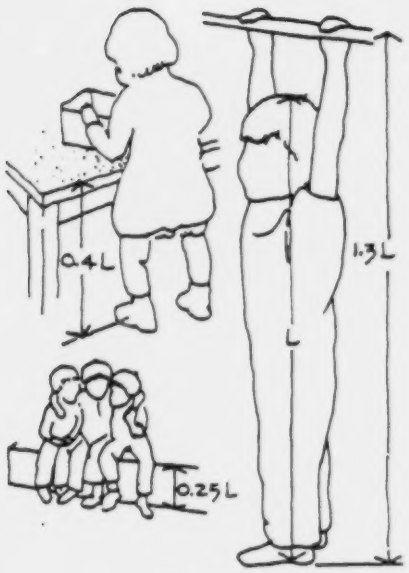


Figure 1

It so happens that the parts of the body are more or less proportional to the standing height. Thus, for example, if a 90cm tall child stands with arms stretched out sideways and horizontally, the distance from fingertip to fingertip will be 90cm. The useful relationships of this sort are given in Figure 1.

POSTURE

The mobility or otherwise of the very young child has a direct and important bearing on the sort of facility to be provided as an early childhood care and education centre.

Obviously, if the children are of the age at which they are cot-bound and, later learning to sit, crawl and walk, then the need for space is quite different from that required for an energetic five-year old who wants to run, jump, dance, play and climb. Equally obviously, the two age groups need to be separated.

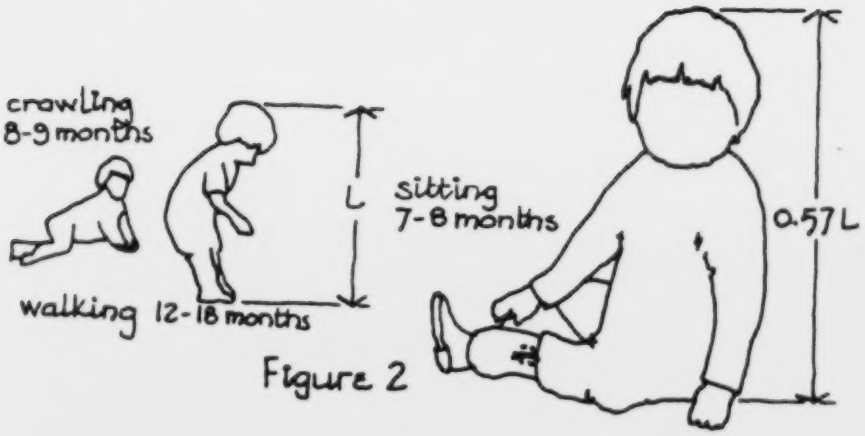


Figure 2

The evolution of posture has been described thus, "Head held up between 1 and 3 months; stable sitting position between 7 and 8 months; sitting up from the lying position and crawling on all fours between 8 and 9 months (Figure 2), these are the landmarks prior to walking between 12 and 18 months". By 2 years, the child can walk up and down suitably sized stairs (Figure 3) and by 3 years, walks around alone and with purpose.

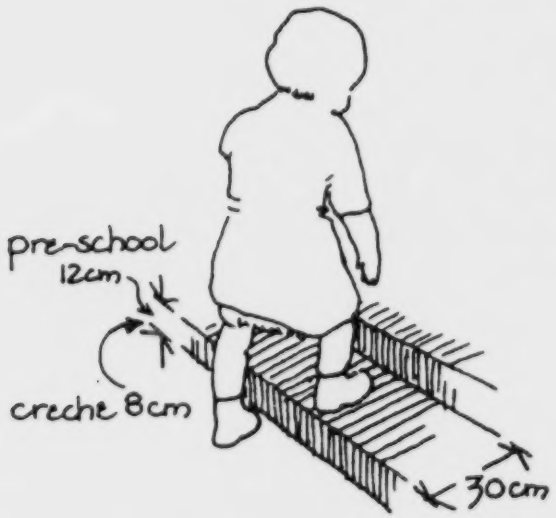


Figure 3

Digest No. III, of this series, pages 34 to 43, sets the above brief description in a wider developmental context and will be essential reading for anyone making decisions on facilities, yet unfamiliar with the growth of the very young children.

CONTROL

a) Toilet training

The child is able to control the muscles affecting the evacuation function at about the age of 2 years. Until this control becomes possible, there is no point in trying to train the child to use the toilet. This means that, if the early childhood centre admits children from a few months old, then provision must be made for dealing with incontinence. There will have to be a facility for changing and washing the child's clothes, washing the child and for disposal of excreta.

Children may be expected to become able to use the toilet at between 20 and 30 months, helped, of course, by the nurse or supervisor. By 3 years of age, the child should be able to use the toilet increasingly easily without help. Three years is thus a reference point which is important to the provider of facilities for early childhood care.

Thus far, the general position as it relates to child development of control of evacuation has been described. Social practices, however, have an important bearing on the whole matter. Methods of toilet training vary sharply between cultures; ways of dressing children differ too. Some children are clothed in such a way that excreta is captured by the clothing. Others are not. The methods of anal cleansing also vary widely from place to place. This requires reflection in the type of toilet provided.

In short, toilet training and toilet habits are important factors on the type of facilities to be provided.

b) Gross and fine motor co-ordination

The development of the child, both physical and intellectual, is brought about by interaction with and operation on its environment - or by playing.

Play, be it active or less spontaneous, is thus the basis for educational strategy and space for play, one of the most important components of the early childhood care and education centre.

Two of the several developmental functions of play are the improvement of gross and fine motor co-ordination. Jumping, climbing, balancing, hopping, rolling, crawling, throwing, dancing and so on, are activities which lead to gross motor co-ordination. Many such activities can, as is well illustrated in Digest II of this Series (pages 51 and 52) take place in the home or similar small space. If, however, more space can be made available, then the range of possible activities can be greatly extended. In general, the older the children, the more space required.

By contrast, development of fine motor co-ordination can be achieved in quite small spaces. Drawing in sand or on paper, sorting and stringing beads, tracing patterns, playing with marbles, assembling items, stacking bricks or blocks, are examples of fine motor activity.

Thus an early childhood centre requires large and small spaces. Of critical importance is the way in which the child operates on these two environments. This is random and not programmed. At one moment the child will be hopping or

throwing (both gross motor activities) in the large space and, more or less without warning, will decide to change activity to, say, drawing or stacking blocks (both fine motor activities) in the small space. This should be made as easy as possible for the child by juxtaposing large and small spaces. The child should not have to pass through doors or corridors to change activities. If only one large space is available, smaller spaces must be contrived within it - perhaps using small screens (Figure 4).

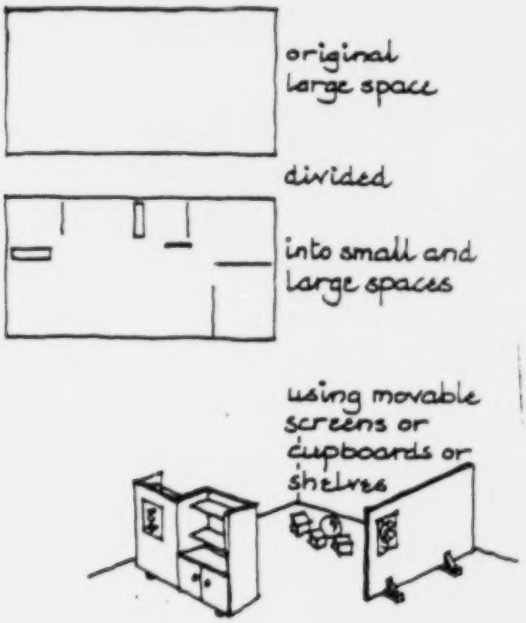


Figure 4

SLEEPING AND FEEDING

The three main activities of a child in any early childhood centre are sleeping, feeding and playing. In the beginning, the pattern is one of sleep, alternating with frequent feeding. Slowely, as the child ages, the requirement for sleep diminishes, feeding becomes less frequent and play time slowely increases until formal

education commences. The three drawings (Figure 5) show the change in the balance of activities. At the age of between 2 and 3 years, there is a distinct change towards less sleep, less frequent feeding and more play. At this point too, the child begins to be able to feed itself which results in different arrangements for meals.

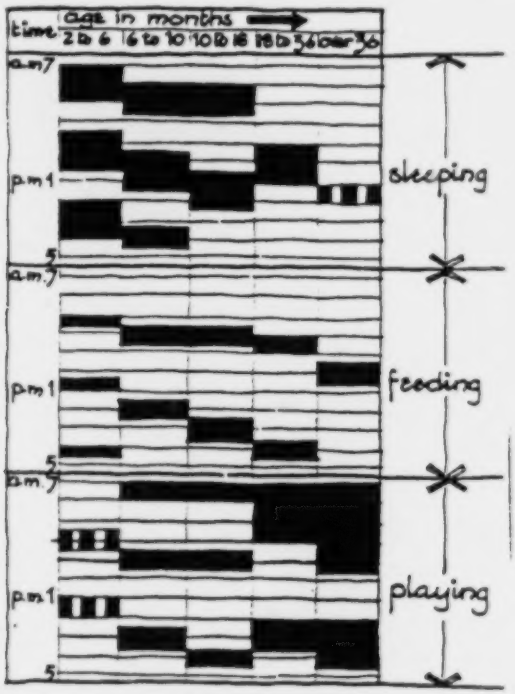


Figure 5

CRECHE AND PRE-SCHOOL

It will be evident from the description of the growth of the young child from zero to six years of age, provided in Digest III of the Series, as well as from the preceding sections of this Chapter, that the development of young children takes place in two somewhat distinct phases. Before the age of three years, children spend much of the day sleeping. In their waking hours they learn, progressively, to crawl, sit and, finally, to walk and run unaided. By the age of three, they have become toilet-trained and are able to feed themselves. They are, by now, relatively independent.

ECCE programmes for children from zero to three years of age involve a major element of what is described as Care. Of course the children are also developing intellectually and, to a lesser extent, socially during this period but the main emphasis is on ensuring they have enough sleep, are adequately nourished, are kept clean and toilet-trained, that they are free from sickness and secured from the hazards of the outside world. In many countries, those caring for children from zero to three years are trained nurses or nursing aides.

From the age of three years to the age of entry to primary school, the now fully active young children continue to develop physically but their intellectual and social development assumes greater significance then when they were younger. The concerns of ECCE programmes are increasingly focussed on Education (physical, intellectual and social development), though care - especially health and nutrition - remains an important concern. Those managing ECCE programmes in this second phase are trained as 'teachers' rather than as nurses.

Because the activities associated with each of the two phases are so very different, it is important to provide quite separate and different facilities to house them. The predominant activities of the very young are sleeping and feeding. They would be severely disrupted if, say, ebullient 5 year-olds were to occupy the same space.

In many countries these two phases in the development of young children are recognised by the provision of different ECCE programmes. For the children from 0 to 3 years old, the care focus is in 'creches' (which term is used here to include home-based centres) while from 3 years to entry to primary school, the education focus is in the 'nursery', 'kindergarten' or 'pre-school'. In this text, the term 'pre-school' will be used.

References

Unesco, Design ideas for pre-school centres. Education Building Digest 16 - Unesco, Bangkok, 1984.

Data derived from a report provided by the Bernard van Leer Foundation, the Hague, 1983.

IV

FACILITIES FOR CARE

In this chapter, as well as in the chapters that follow and deal with Education and Management, a uniform approach will be adopted, namely:-

i. The cirteria affecting the facilities component will be stated, noting the different requirements for creche and pre-school, as and when they occur;

ii. if applicable, norms and standards will be suggested;

iii. examples of facilities components will be described and illustrated in a resource-related context;

iv. summary of i., ii. and iii.

1. HEALTH

a) Water

i. Drinking water:

Water for drinking should be free of disease-producing organisms and free of suspended matter[1].

ii. Water for other purposes:

- for children aged 0 to 3 years (creche) where water is needed for washing the child, the child's clothes and for drinking - about 95 litres per child, per day (pcpd). If water closets are in use, then 135 litres pcpd should be provided.

- for children 3 to 6 years (pre-school), 45 litres pcpd if water closets are used; otherwise 25 litres pcpd is adequate.

Where the water source is not from a public supply but from, for example, an open well, water course or other source that is likely to be contaminated, the water should be sampled and tested. This is of particular importance if a septic tank, cess pit or other means of disposal of faeces is within 33 metres of the water supply source. Where the B.colli count is unacceptably high then, depending on the local circumstances, it will be necessary to change the source of supply and, if this is not possible, to boil all drinking water or to use purification tablets. The fact that local people continue to drink the untreated water should not be allowed to affect the policy of providing the children with potable water.

iii. In a home-based centre for a few children, if water is impure then purification tablets might be included in any small kit issued to the mother (see Chapter VII, below). A water filter might also be provided if drinking water contains suspended matter.

In buildings adapted for use for ECCE and in purpose-built-facilities, drinking water points-taps or unglazed ceramic pots (in hot, dry areas) - should be provided at a level where they can easily be reached by the pre-school child (Figure 6). Where unglazed pots are stored in a water room, then an important aspect of management will be their regular cleaning to remove algal growth.

Figure 6

b) Washing/bathing facilities

i. From 0 to 3 years, the child will be incontinent and water must be available for washing the child's body and clothing. By 3 years of age, the child will be toilet-trained and able to feed itself. A critical part of this training is the washing of hands after defecation for, where anal cleansing is by use of water or earth, then enteric disease is the likely direct outcome of failure to wash the hands. Washing before and after feeding is also an important aspect of training - especially in those areas where the hands are used to put food in the mouth.

****
* *Children will only wash if it is* *
* *made easy for them to do so.* *
* *Ready availability of water for* *

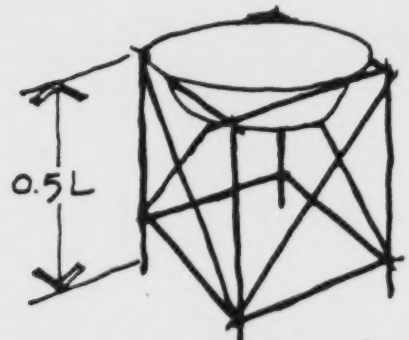
washing - either in bowls or from taps - is thus an important criterion in facilities provision.

Above the age of 3 years, taps, washbasins or bowls are adequate for washing but where there are groups of children, there should be one facility for bathing in the (common) event a child is incontinent by 'accident'.

ii. Care of children aged 0 to 3 years in home-based centres involves the use of the home bathing facility. If, as is the case in some countries, the practice is to bathe in the evening round the community well, then water will have to be drawn in the morning and kept for bathing the child in the house.

In creches accommodating more children than the home-based centre then, for every 10 children there should be one large sink in which a child can be put down or stood and, on either side of it, benches for dressing, undressing and drying the children. The sink should have a large trap as excreta will be washed away in it. It should be connected to the sewage system. There should, in addition, be one wash-hand basin per 10 children at a convenient height for use by 2 and 3 year olds. At pre-school also there should be one wash-hand basin per 10 children at a height suitable for use by 4 to 6 year olds. In addition, one shower or bathing facility is needed for about every 20 children.

iii. In the home-based centre or in the adapted building where there is no wash-hand basin with tap, a basin should always be kept full of water on a simple stand (Figure 7).



enamelled wash basin in bamboo stand

Figure 7

For the creche, the bathing facility should adjoin the play space (Figures 8 a and b) and basins can be located in or near the play space and bathing area.

a cheaper washing/bathing unit for a creche also requires less space.

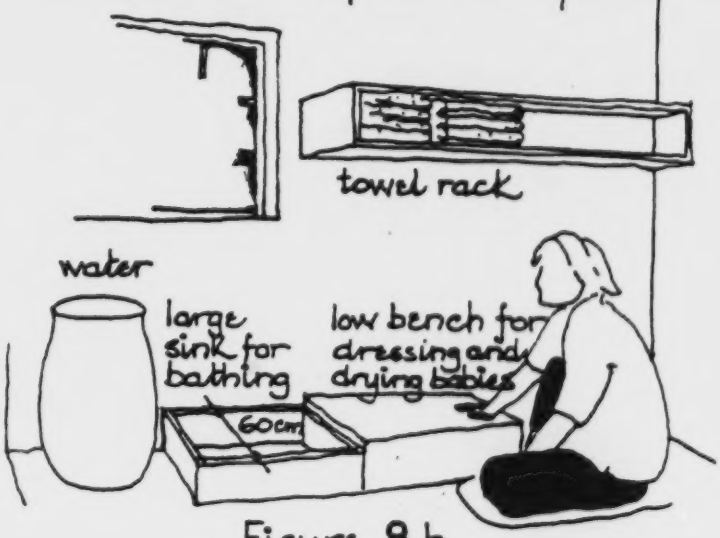


Figure 8 b

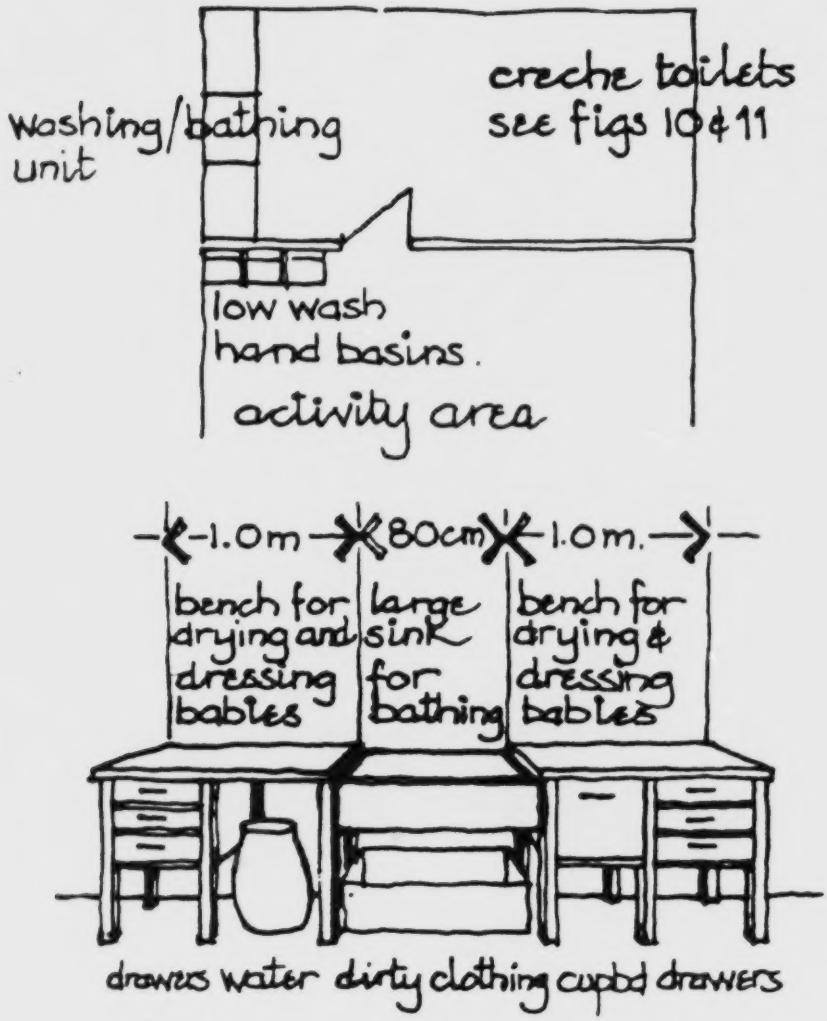

creche toilets
see figs 10 & 11
washing/bathing unit
low wash hand basins.
activity area
1.0m
80cm
1.0m.
bench for drying and dressing babies
large sink for bathing
bench for drying & dressing babies
drawers
water
dirty clothing
cupbd
drawers
notes: sink to be connected to sewer:
If tap water, fix tap high to avoid contact with baby

Figure 8a

In the pre-school, wash-hand basins should be in an open area near both toilet and play space so that the teacher can see that hands are always washed after toilet use (Figure 9).

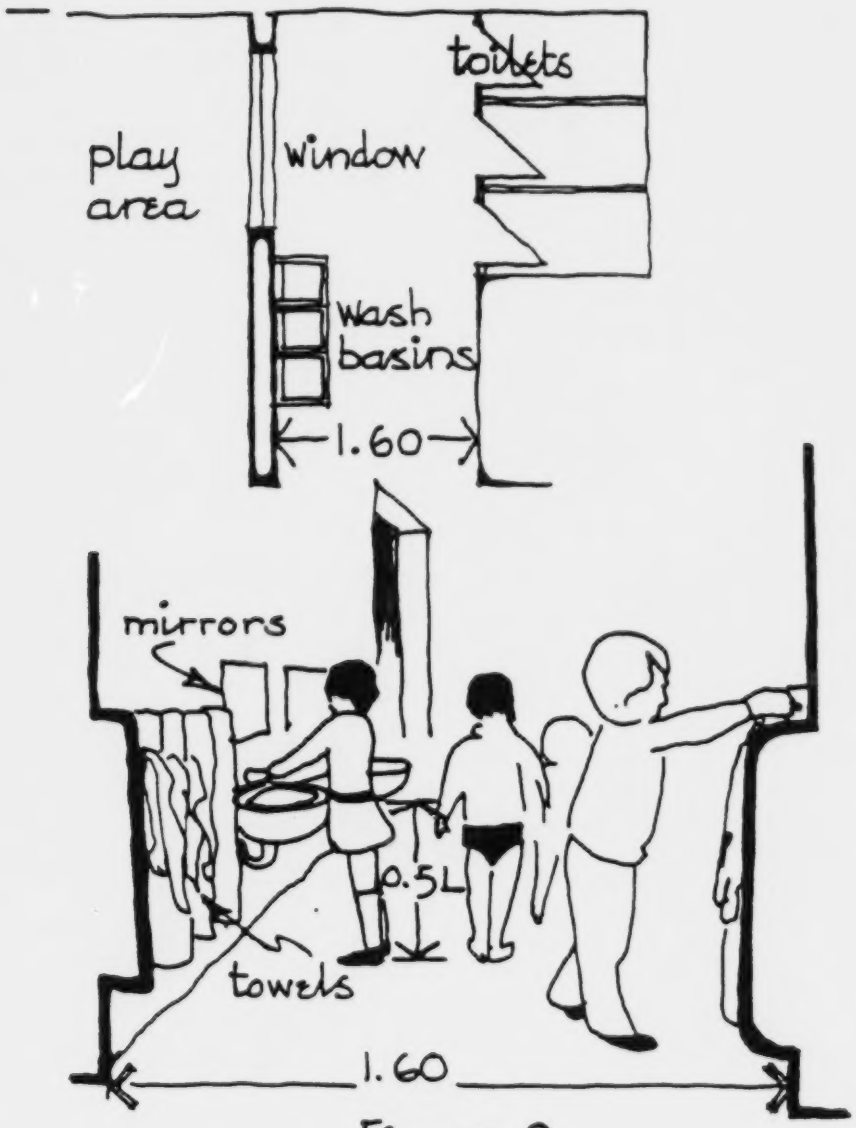


Figure 9

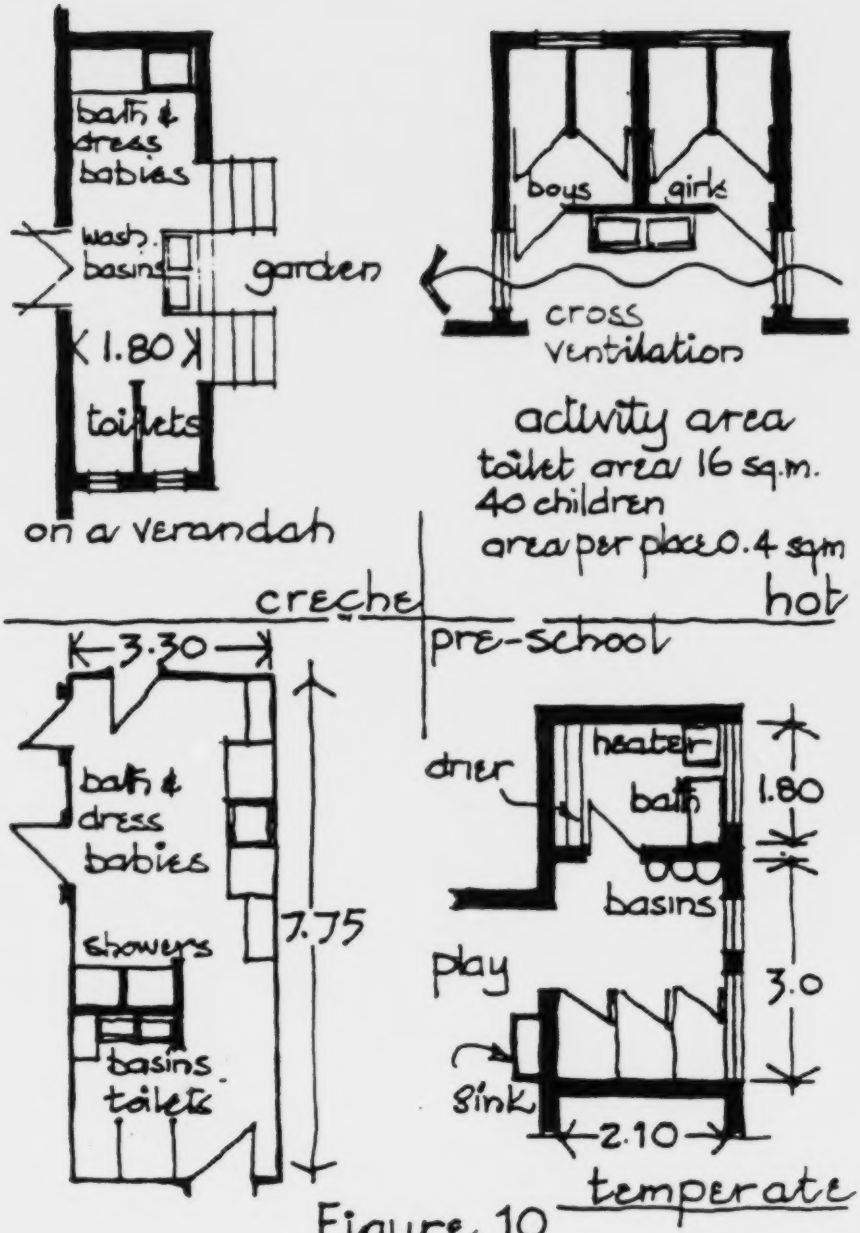

bath & dress babies
wash basins
garden
1.80
toilets
on a verandah
boys
girls
cross ventilation
activity area
toilet area 16 sq.m.
40 children
area per place 0.4 sqm
creche
pre-school
hot
3.30
bath & dress babies
showers
basins
toilets
7.75
heater
drier
bath
basins
1.80
play
3.0
sink
2.10
temperate

Figure 10

c) Toilets

i. Should be fly-proof and easy to clean. They should match the body sizes of those that are to use them.

ii. For 2-3 year-olds in creches - 2 fittings in the open in the toilet space for nurses to use for toilet-training children who are ready.

In pre-school, one closet with door per 10 children should be provided in an easily accessible space, open to the teaching space.

iii. The selections of the toilet type for adapted or purpose-built facilities will depend on local practice. If there are doubts, then the Health Authority and/or the W.H.O. representative's office should be consulted[1]. Two arrangements each for creche and pre-school centres, are illustrated here in Figure 10. Suitable dimensions for a closet for areas where squatting to defecate is the practice, are shown in Figure 11 [2] [3].

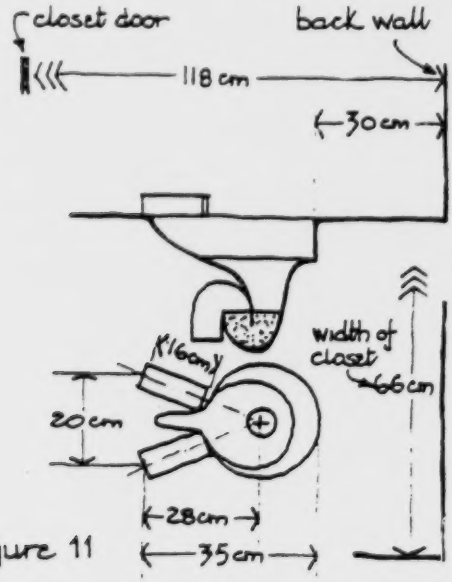


Figure 11

d) Separation of healthy from sick children

i. Where children are gathered together they are 'received' by the person or persons responsible for them during the day. At this point it must be possible, after discussion with the person 'handing over' the child, to separate the sick from the healthy children and to isolate the sick from the healthy for the duration of the day. Apparently an easy task; yet in a report[4] on children in one African pre-school centre, of 25 children, 16 had tonsilitis and in another, of 50 children, one had infected ears and 14 had tonsilitis. In yet another pre-school centre in the same area, of 47 children, 4 had sores, 7 had tonsilitis and one discharge from the ears.

From this it may be concluded that, as deciding on admission policy and, hence on the area of the building to be set aside for isolation, early discussion with the Health Authority will be of critical importance.

ii. The area per child set aside for isolation should be about 3.5 Square Metres for two or three children, reducing to about 2.5 Square Metres per child for 4 or 5 children.

iii. Figure 12 illustrates the reception and isolation arrangements in an early childhood centre.

based on the Viet Nam model

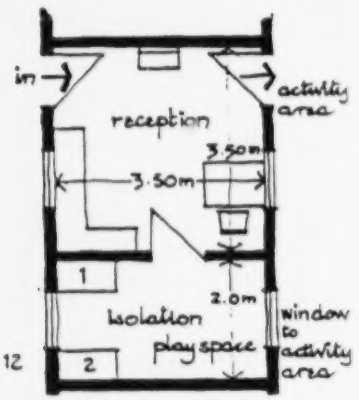


Figure 12

e) The medical facility in a medium-sized or larger early childhood centre

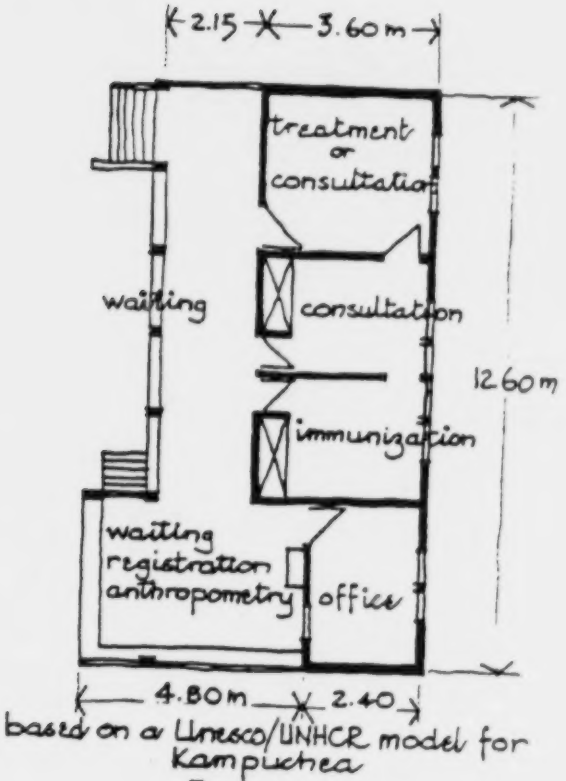
i. The facilities required for a small clinic must be discussed with the local Health Authority. For many countries, a clinic attached to an early childhood centre will be the only medical facility in the area and may only be manned by peripatetic medical staff for a day or so per week. Because it is likely to be the only medical facility, it will be used not only for services to the children, but usually also for the mothers, siblings and even others in the community. Access to the clinic should thus be both from the outside and the inside of the centre. Those coming from outside, will require waiting space.

ii. The basic functions of a clinic will be to make height and weight measurements of children, to provide immunization and to allow for normal consultance. The simplest arrangement might thus require:-

Offices	9	Square	Metres
Waiting space and child measurement	18	"	"
Immunization space	10	"	"
Consultation room	10	"	"
Treatment room	13	"	"

These areas may be increased, and additional areas added, e.g. dentistry, pharmacy, etc., depending on the anticipated use of the facility.

iii. Figure 13 shows a diagram of the patient flow arrangements for a small clinic.



based on a Unesco/UNHCR model for Kampuchea

Figure 13

2. NUTRITION

a) Food preparation

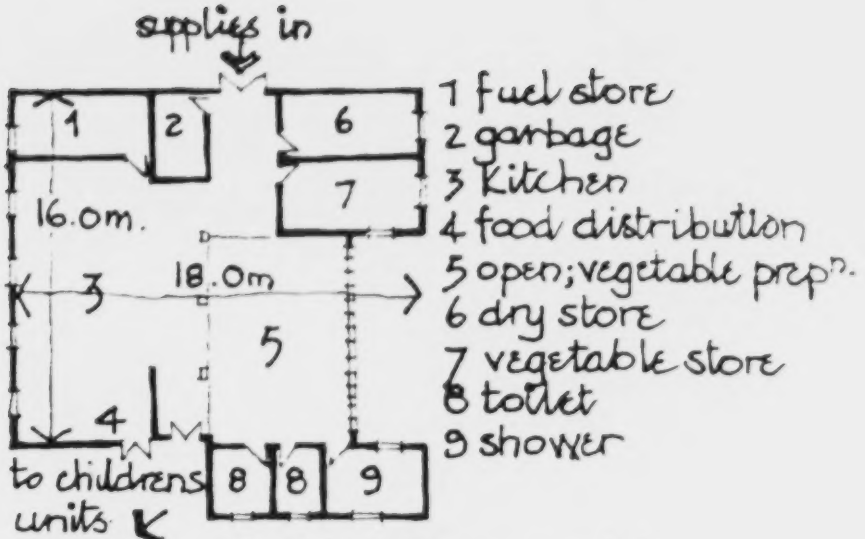
i. *Whatever the level of sophistication of the food preparation activity, the over-riding criterion is that of absolute cleanliness. Disease can be transmitted to young children through food open to flies and/or vermin and also food prepared on dirty working surfaces or in unclean cooking vessels. In the end, cleanliness results from the attitudes of the user.*

The building can 'assist' only in making the task of maintaining cleanliness as easy as possible. That this is so has been borne out by many visits of the author to quite reasonably designed kitchens in teacher training colleges and nurses homes, where the conditions have been indescribably filthy. Clearly, in these matters, the horse can only be led to water: it can certainly not be forced to drink!

The specific criteria for facilities for food preparation are:

- fly-proofing and vermin-proofing of containers for food, before and after preparation/cooking;
- availability of boiling water for washing utensils and (impervious) working surfaces;
- sanitary toilet facilities for those preparing and serving food;
- adequate chimneys and general ventilation - especially where wood or other, smoke-producing fuels are used for cooking;
- impervious floors laid to falls for ease of washing and drainage;
- spaces organized to facilitate activity flow, i.e. stores, preparation areas, cooking areas, servery, fly-proof garbage area and washing-up area.

ii. The criteria in i., above, are as relevant to a domestic kitchen as to a facility serving


supplies in
1
2
6
7
16.0m.
3
18.0m
5
4
8
8
9
to childrens units
1 fuel store
2 garbage
3 Kitchen
4 food distribution
5 open; vegetable prepn.
6 dry store
7 vegetable store
8 toilet
9 shower
based on the Viet Nam model
for 270 children

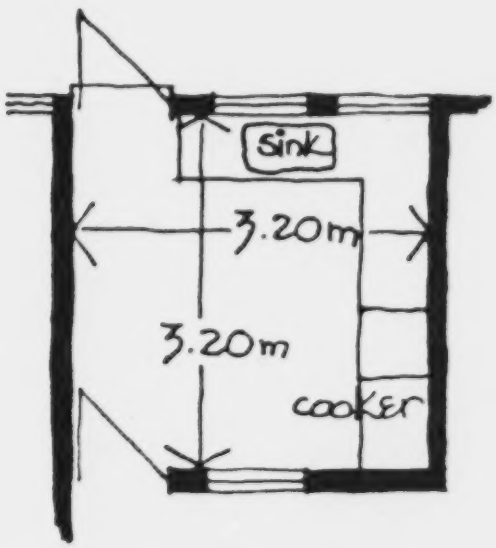

sink
3.20m
3.20m
cooker

Figure 14

some 200 children. Space standards for institutional kitchens are suggested as follows:-

20 children	10	Square Metres
60 children	30	" "
120 children	60	" "
240 children	110	" "

iii. Food preparation facilities for 20 and 270 children are illustrated in Figure 14, and Figure 15 suggests ways of storing food safely.

3. SAFETY

a) Enclosure

i. Dogs pass the eggs of round and hookworms in their faeces and these eggs can be picked up on the hands of children and if, subsequently, food is taken or the hand put in the mouth without washing, then the worms may develop in the child. Some animals in many areas may be rabid. Both considerations suggest that creches should be such that animals are totally excluded by suitable fencing and, per contra, that the children are confined to the area of the creche.

Children of pre-school school age are also at risk, though they should, if management is effective, have been trained to wash. Nonethe-less, it is still wise, where possible, to fence pre-school institutions so that the children are confined to the site and animals excluded. Where a pre-school institution is located in the grounds of a primary school - a common location - then it will need to be fenced to exclude the primary school children as well as goats and cattle that wander in school sites in some countries.

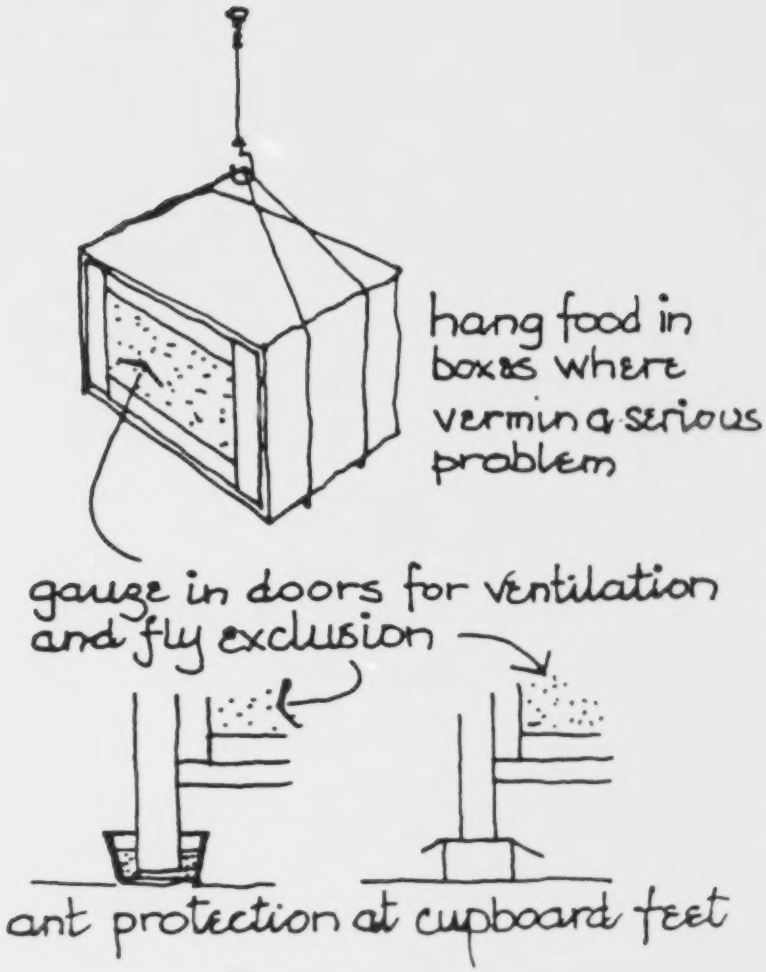

hang food in boxes where vermin a serious problem
gauze in doors for ventilation and fly exclusion
ant protection at cupboard feet

Figure 15

ii. A one metre high fence will exclude animals and confine children in a creche. A 1.5 metre fence is adequate round a pre-school establishment.

iii. Fencing will always be of the most suitable, locally available material. Barbed wire, sometimes used, is dangerous to children and does not exclude dogs or goats.

b) Internal hazards

(x) Children should not have access to kitchens or they may be burned or scalded.

(y) Furniture and fittings - especially at head height - should have rounded rather than angular corners.

(z) Steps should match the scale of the child.

Figure 16 illustrates points (y) and (z).

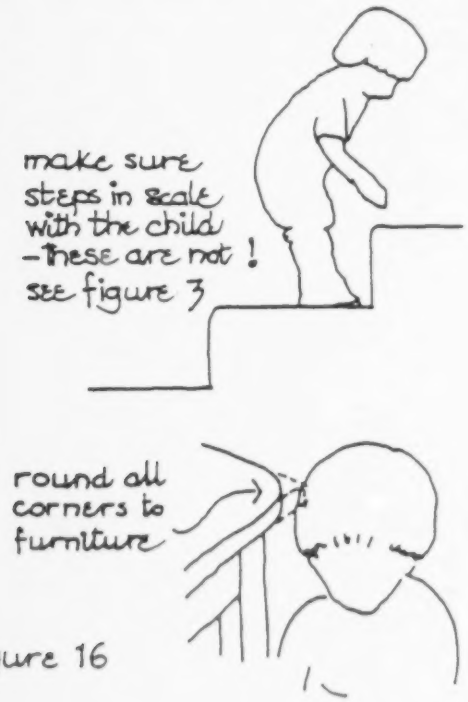


Figure 16

4. COMFORT

It is impossible to be specific about thermal comfort in a general text. The best advice that can be given is to identify local, thermally comfortable stereotypes and to try to reproduce a similar condition of comfort in the creche or pre-school establishment.

Comfort is principally affected by radiation, humidity and ventilation. So that these three components should be borne in mind in analyzing a local, comfortable steroetype.

In hot climates particularly, there ia a natural inclination to solve the different roofing problems using thin materials, such as corrugated sheets. These may cause considerable discomfort due to radiation internally - discomfort which a pre-school child can alleviate by moving, perhaps outside to a shady area under a tree or by a wall. The less mobile child in the creche has no such mobility, and thus, special care has to be taken to ensure that thermally comfortable conditions are provided. If a corrugated, galvanized iron roof has to be used, then either cover it externally with traditional local materials such as palm leaf thatch or provide a ceiling under it of, for example, thatch or bamboo matting (Figure 17).

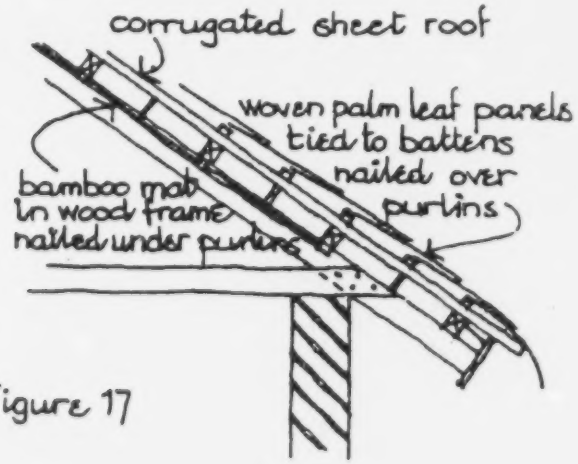


Figure 17

In most hot, humid and dry areas, flies frequently contribute, not only to the spread of disease, but also to the discomfort of the very young child.

Fly-proofing of rooms or, if this is impossible, of the areas in which the children sleep - possibly with mosquito nets over hammocks, cots or mats is essential. Nets have to be hung and this requires thought in the design of the building/furniture.

Adequate illumination by daylight is also essential. Narasimhan and others[4], examining a sample of 2,200 school children in Uttar Pradesh, India, found considerable differences in visual acuity that were not connected with malnutrition alone. Sub-normal vision increases with age from 5 to 13 years and it was concluded that this deterioation was due to prolonged use of the eyes under poor lighting conditions or use with strain.

Illumination levels, the study concluded, should not fall below 106 lux, but could, with advantage, be increased up to 220 lux.

There are well established methods of calculating the sizes of openings to achieve desired levels of illumination[5] for example, but, if these prove too difficult, then in tropical areas, if openings equal, roughly from 8 to 10 per cent of the floor area of the room, are evenly spaced along the walls, enough light will usually be available. This matter is often not taken too seriously but, as ECCE is provided to increasing numbers of children, its importance is evident if sub-normal vision is to be avoided.

'Noise' or undesirable sound, is also to be avoided. It is hardly possible to be more specific than this for the urban child is likely to be acclimatized to higher sound levels than the child in the countryside.

The children in a creche will probably be most affected during periods of sleep by sharp changes in sound levels, rather than by farily high sound levels.

In the pre-school, the children will need to be able to hear each other and the teacher articulate. Buildings - whatever their nature - should be as far from noisy roads as possible and where this cannot be avoided, have open windows facing away from roads. In cases such as those of the mobile creche on a building site, the best that can be done is always to conduct the activity as far away from site noises as possible - for sound reduces sharply as the distance from the source increases.

Summary - Facilities for Care

Facility for	Creches, including home-based centres	Pre-school
1. HEALTH		
a) Water	95 litres per child per day and if water closets and laundry then 135 litres per child per day.	25 litres per child per day and if water closets, 45 litres per child per day.
	Water source greater than 33 metres from cesspit or septic tank.	
		Drinking water readily availalbe at taps or in water rooms.
b) Washing and bathing	Large sink (slop sink) for every 10 children with adjacent benches for dressing/drying.	1 wash-hand basin (at convenient height) per 10 children.

Facility for	Creches, including home-based centres	Pre-school
	Sink connected with foul drains. Laundry at 0.25m^2 per place in larger creche.	1 shower or bath facility for 'accidental' incontinence per 20 children.
c) Toilets	for 2-3 year olds 1 or 2 fittings in each group area for nurses to use for toilet-training	1 closet per 10 children - easily accessible from group space. Dimensions of fittings to match childrens body sizes.
d) Isolation of sick children	Provide isolation room of about 3.5m^2 per child for two or three children, reducing to 2.5m^2 per child for 4 or 5 children. The health authority should be consulted on the detailed requirements.	
e) Medical facility	A small clinic would require not less than about 60m^2, providing waiting space, immunization, consultation and treatment room. The health authority should always be consulted when a clinic is to be provided.	

2. NUTRITION

Areas required for food preparation in early childhood centres, will be roughly, as follows:-

20	children	-	preparation area	10m^2
60	"	-	"	30m^2
120	"	-	"	60m^2
240	"	-	"	110m^2.

Facility for	Creches, including home-based centres	Pre-school
3. SAFETY		
a) Enclosure	Total exclusion of all animals (dogs, cattle, goats) from areas used by children. Also exclude old children from pre-school. Fence about 1m high.	Fence to prevent children straying from site. Also exclude older children from e.g. primary school. Fence about 1.5m high.
b) Internal	Avoidance of furniture with sharp corners.	
	Steps about 8cm rise	Steps about 12cm rise.
	Normal tread for use by adults and children.	
4. COMFORT		
a) Thermal	Adapt thermally comfortable, local stereotypes.	
b) Illumination by daylight	Not less than 106 lux up to 220 lux. Approximately an area of windows equal to 8-10 per cent of floor area of room.	
c) Sound	Locate buildings and activities as far from source of undesired sound as possible.	

References

1. WAGNER, E.G. and LANOIX, J.N. Water supply for rural areas and small communities. Geneva, World Health Organization, 1959.

2. WAGNER, E. G. and LANOIX, J.N. Excreta disposal for rural areas and small communities. Geneva, World Health Organization, 1958.

3. A.R.I.S.B.R. School building design : Asia. Colombo, ARISBR, 1972.

4. NARASIMHAN, V. (& others). Visual acuity in school children. Calcutta; n.p. 1971. Reprinted from the Indian Medical Journal. Vol. 65, July, 1971.

5. A.R.I.S.B.R. School building design : Asia. Colombo, A.R.I.S.B.R., 1972.

V

FACILITIES FOR EDUCATION
(i.e. Play, Early Stimulation)

In this Chapter, a division is made which enables consideration of the facilities required for the physical and intellectual development of children from 0 to 3 years old and from 3 to 6 years old. Development is, as has been discussed in Chapter II, through play, so the facilities - buildings and sites - are play facilities. For convenience, the sections have been described as 'Creche' and 'Pre-school' and these titles should be taken to refer to any resource from home-based facilities to purpose-built institutions. Finally, whether the institution is a creche or pre-school, it is important to remember the planning of the building should not be separated from that of the outside facilities - they are one unit.

1. CRECHES (including home-based centres)

   i. Play Space : The youngest children, aged up to 20 months will require one space in which to sleep and play, for much of their development to this age does not involve movement from the place in which they are set down.

> *Body play, explorative play, imitative play and end product play involve physical movement, but only on a very limited scale. If the children sleep on mats on the floor then the mat and the immediate area round it will provide enough space for activity at this earliest stage of development.*

As the child learns to crawl, stand and, eventually to walk, more space is required and the child can be encouraged to explore, perhaps from the room out onto a verandah and down one or two small steps (see Chapter IV) to a small garden in which low walls and other small features may provide additional incentive to play, step or cramble, and thus help motor development.

The garden, verandah or other, securely fenced area for the creche can be quite small. About $2m^2$ per child would be adequate, if minimum. It will be used, mainly, by the two to three year-olds who, as well described in Digest No. III in this series, walk and explore the surroundings, use stairs and finally, learn to jump, climb and hop.

The home-based centre provides an admirable environment for all these gross motor activities, as well as for the fine motor exercises such as stacking bricks.

A contrived environment such as may be provided by adapted or purpose-built buildings should also provide features such as simple steps, low walls for climbing and small areas which the child can explore.

ii. Sleeping Space : A sleeping mat, folding bed or cot, should be 1 metre long and 50cm wide. It will need access for the nurse/nursing aid/mother on any two adjacent sides, of at least 60cm wide. Thus the minimum sleeping area per place will be $1.76m^2$. Obviously, if children sleep in immovable or movable cots, then a roughly equivalent, additional area will be required for play. In the home-based centre, this may be available but in an adapted or purpose-built facility, it will have to be found and paid for.

The case for using mats for sleeping is thus strong and not only on grounds of cost, for a mat on the floor makes a good surface for the child to learn to crawl and toddle - a cot does not, although the bars help with standing.

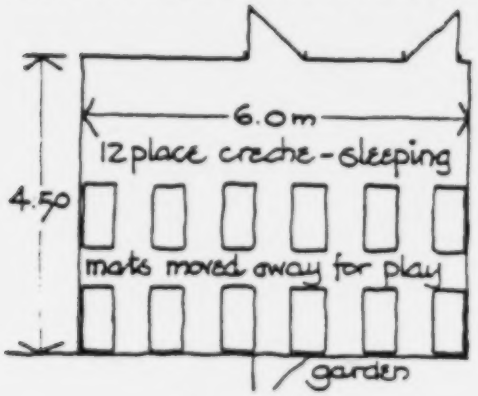


Figure 18

Figure 18 shows a space for the youngest child in a creche with the area for sleeping and a small additional area needed for nursing and movement of the nurses. In all, about 2.25m^2 per child place is adequate. It may be noted that where play and sleeping activities are separately housed, then the requirement is for over 3m^2 per place.

Contrived features can be derived from the building and site - there is no need to provide elaborate/expensive equipment which is so often nothing more than a substitute for use of the imagination by the designer.[1] [2]

Figure 19 suggests some simple ideas for using the building/site to provide areas for physical/intellectual development of children of 2 and 3 years old.

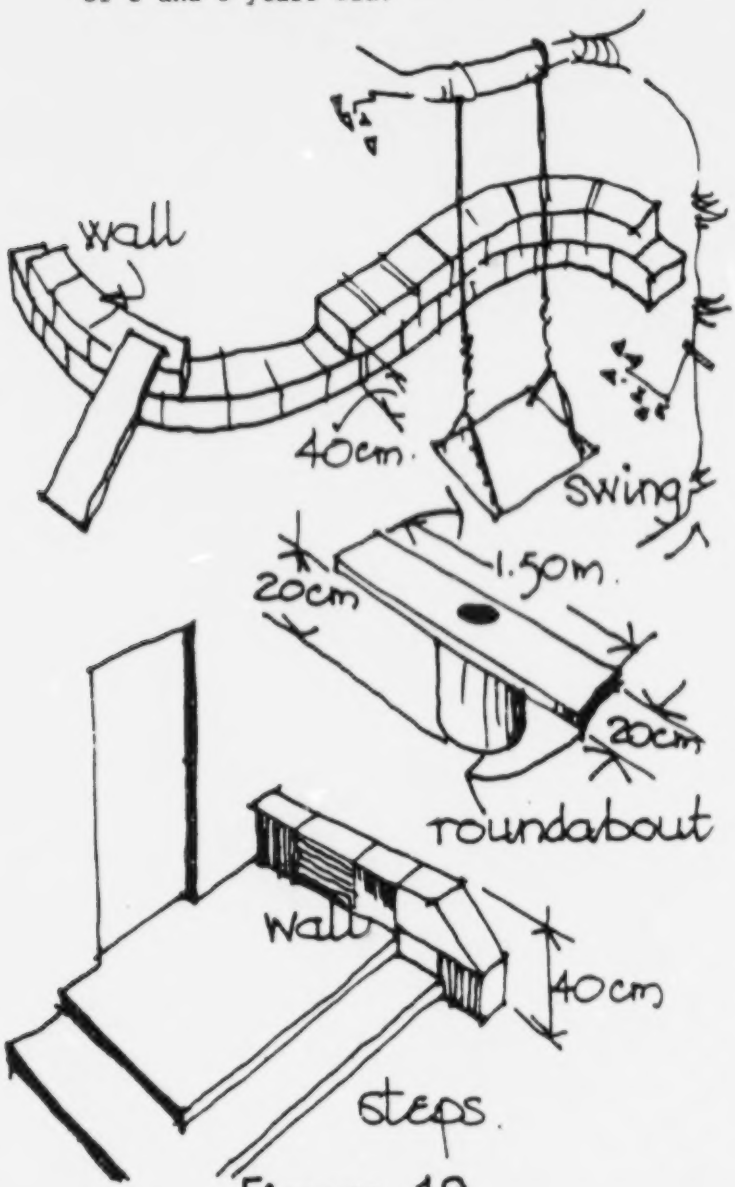
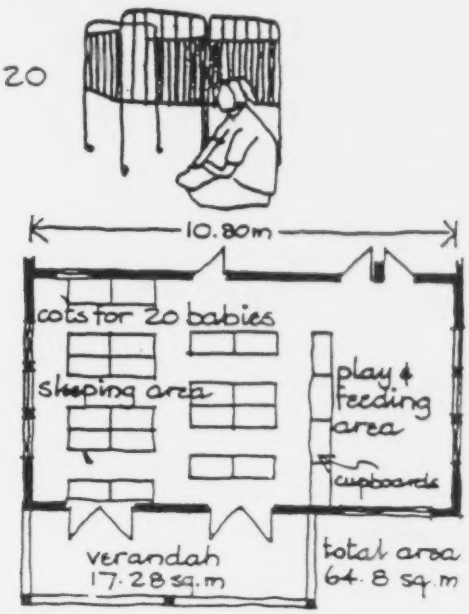


Figure 19

The alternatives for sleeping include mats, hammocks, cradles, stackable beds and cots.

Cots are unique in this list as they occupy floor space which can be used for nothing else. They have the advantage that they are easily fly-proofed with nets, secure the child from crawling away, provide assistance to the child attempting to stand and, finally, because they are higher than the alternatives, involve the nurses in less bedding. As far as their primary function - sleeping accommodation - is concerned they have no advantages over the alternatives. Certainly, a nurse responsible for 10 to 15 small children, may feel more at ease in dealing with one child if the remainder are safely 'caged'.

Figure 20



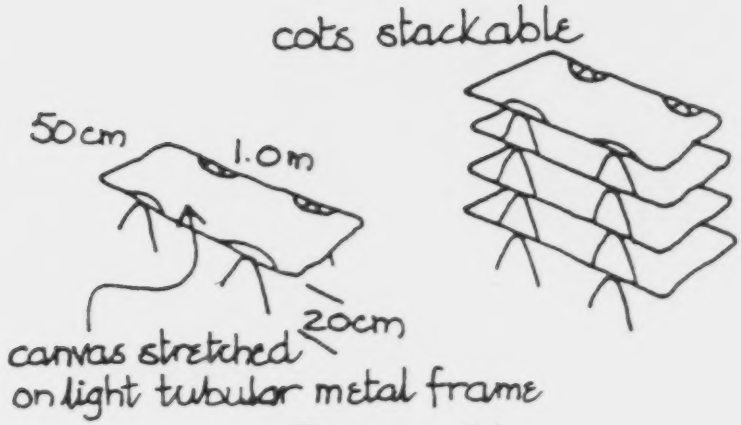


Figure 21

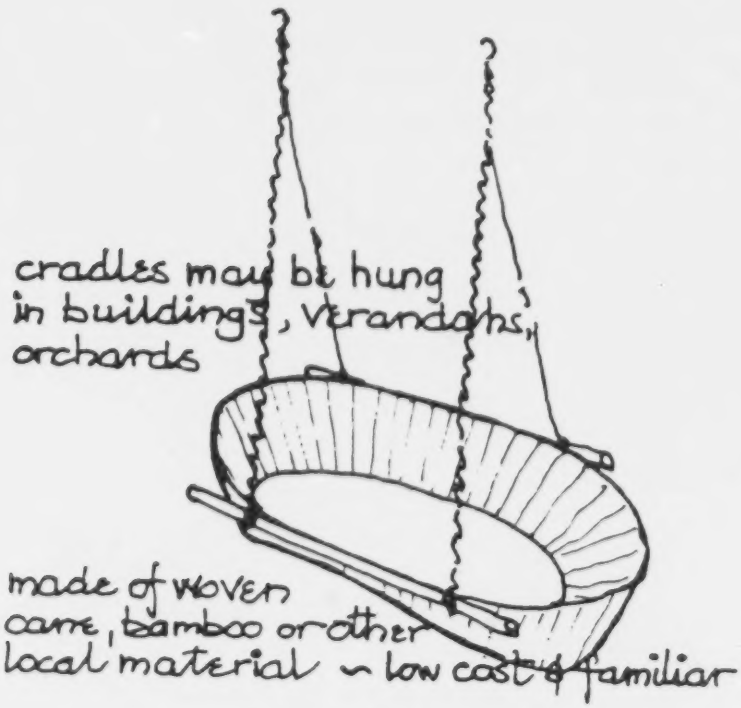


Figure 22

so the issue is that of choosing. In the Socialist countries where ECCE is most widely spread, creches normally provide cots and separate sleeping and activity areas (Figure 20). In other countries, other choices have been made (Figures 21 and 22).

2. PRE-SCHOOL

i. Outside Play Space: For a home-based or large and more formal pre-school centre, the criteria for play spaces include:

a) a larger space linked directly to smaller spaces. The child can then move at will to pursue individual activities. Figure 23 illustrates the requirement in principle. In sub-section iii., below, ways of achieving such an arrangement in different building contexts are illustrated.

b) an outside space linked directly to the enclosed space in a), above, and having essentially the same characteristics, namely larger areas for gross motor activity and smaller areas for play with sand, water, story telling and so on.

The various spaces - large and small - both inside and outside the building, will accommodate the entire range of activities planned for the pre-school child.

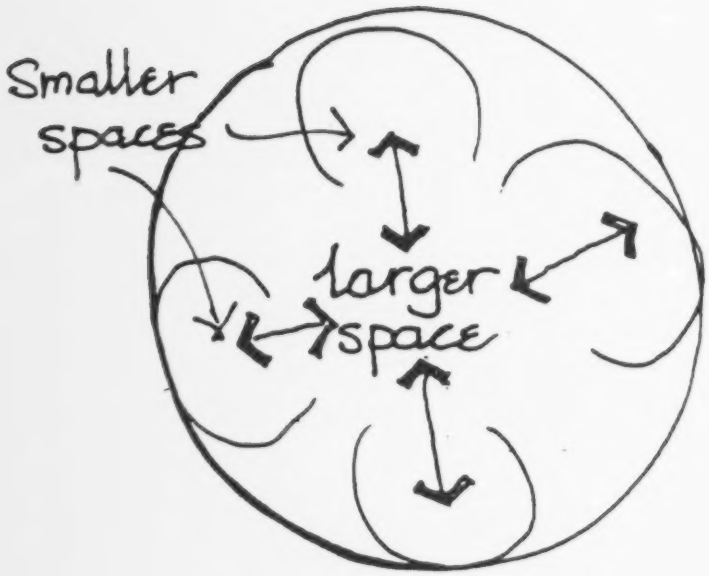


Figure 23

The activities may be spontaneous, exploratory, contrived or structured. They may include, as has been suggested in previous Digests, a wide range of activities such as manipulation of objects, materials and equipment, dancing, music, drawing, painting and, as the age of entry to

primary school approaches, work on a broad range of cognitively stimulating activities leading up to a readiness for primary education.

Within the spaces suggested by this Digest, the changing activities of the pre-school child from the age of 3 to 6 years will be accommodated by a range of different types of furniture and of different arrangements of the furniture within the spaces as the nature of the activities changes.

It is worth remembering that children from urban slums, "often suffer from an acute shortage of adequate space".[3 4] Pre-school centres in urban areas should be arranged, as far as is possible, to compensate for this disadvantage through liberal space provision. This, itself, is often likely to be difficult. Cities in and around which urban slums and shanty towns are allowed to develop are, by the same token, often unplanned and thus lack the spaces normally set aside for education.

Knight[2], recognizing that the urban planning problems are unlikely to be solved in the short term, suggests a number of practicable locations for play including:-

> Found spaces - such as cul-de-sacs, walkways or paths, natural areas, vacant plots of land, informal gathering places.

Play areas integrated into social, educational, sports or cultural facilities such as the sites of community centres, museums, libraries, town squares, market places, school yards.

Temporary spaces - flat roofs, car parks, blocked-off streets.

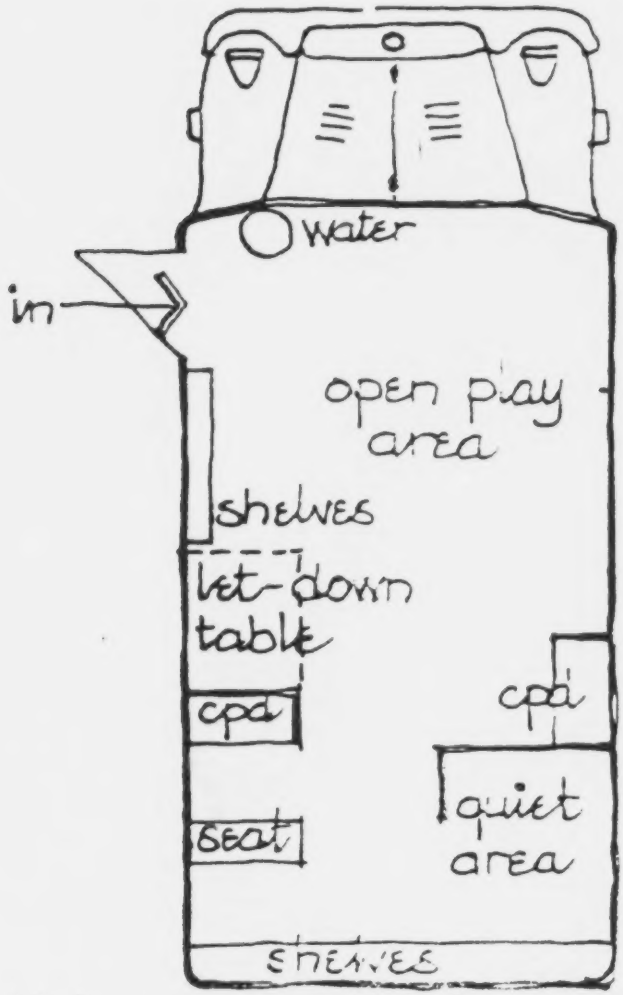
Specialized areas - regional parks, historical or tourist sites, shopping complexes.

ii. Inside Play Space : The suggested maximum area per place for play within the building is 2.70m^2. Many countries conduct good pre-school programmes in less space. The Socialist Republic of Vietnam, for example[5], provides 1.40m^2 per child. Hungary, with its severe winters and hot summers, provides 4.02m^2.

It seems sensible that in countries where the climate is less clement and the children are perforce, in the building for substantial parts of the year, more space is provided than in places where the climate permits much greater use of the site for play.

The areas for sites are, in view of the section above outlining the urban problem, suggested with considerable diffidence. A rough but useful guide is to provide an outside play area approximately equal to the floor area of the building - that is the total area of kitchen, stores, toilets, interal play areas, staff rooms, etc.

many old buses, railway carriages adapted for use in ECE.



old bus converted to playbus

Figure 24

Of the outside play area, some could be under the shelter of a verandah about 3 or 4 metres wide, where the children can play with wood, water, paint, etc. The open area could include places for sand and water play, 'gang' play, play with wheels (hard surface), run, jumb, climb, throw balls, etc. Older children may wish to garden and a small fenced area could be set aside for this.[6] Such, however, would be a site based on a council of perfection. A good, traffic-free urban cul-de-sac will also serve as will a safely fenced flat roof of the sort the author played on in youth. Play, let it be recalled, is spontaneous and can take place in a wide variety of surroundings.[7]

Figures 24 and 25 show examples, respectively, of indoor play spaces in adapted and purpose-built pre-school centres. Figures 26, 27 and 28 show outdoor play spaces on the flat roof of buildings, in a cul-de-sac, outside a pre-school in a courtyard and, finally, outside a purpose-built facility on an 'ideal' site.

Summary - Facilities for Education

Facility for	Creches, including home-based centres	Pre-school
Sleeping/play	2.25m^2 per child	2.70m^2 per child if possible, but not less than 1.40m^2.
directly linked with	If separate areas for sleeping and play then 3.0m^2 per child.	

Facility for	Creches, including home-based centres	Pre-school
Outside areas for play	2.0m^2 per child, part of which may be covered verandah	Outside area roughly equivalent to the total floor area of the pre-school centre. Part outside area may be 3 or 4 metre wide, covered verandah.

Note: Both inside and outside areas should comprise large space, directly accessible to one or more smaller spaces to allow children to choose their own activities/environments.

References

1. HORSTEN, T. Livre de ressources pour les écoles maternelles au Sénégal. Unesco Bureau Régional pour l'Education en Afrique, Dakar, 1978.

2. KNIGHT, J. Playing and learning opportunities for children in urban areas : play spaces and equipment. Unesco, Reports and Studies S104. Division of Educational Policy and Planning, Paris, Unesco, 1983.

3. Ibid.

4. RATNAIKE, J. Op. Cit.

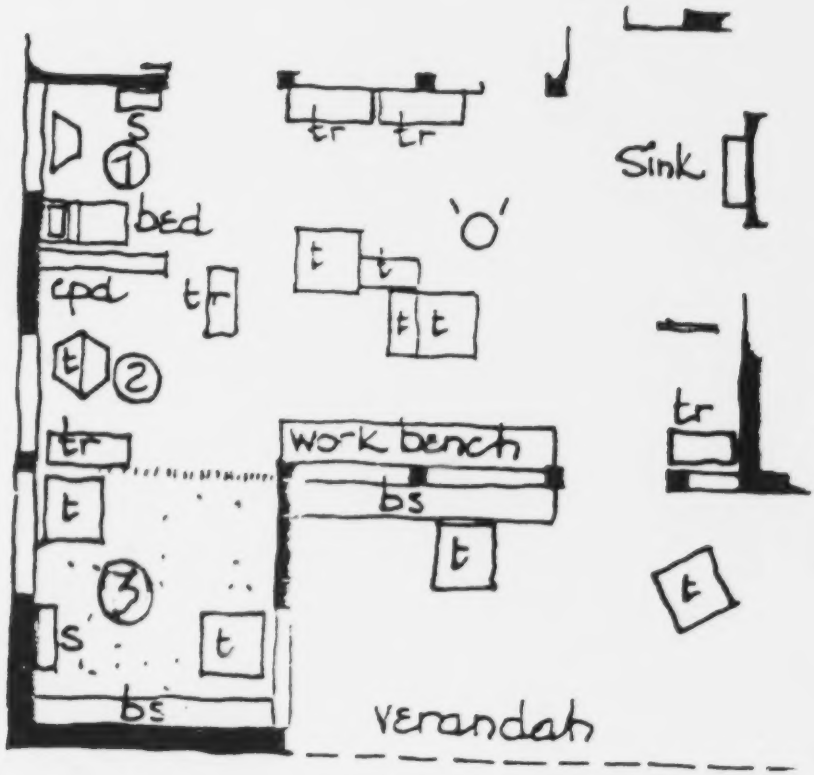
5. HAMEL, J.P. and SHEATH, R.H. Op. Cit.

6. UNITED KINGDOM. Building for nursery education. Department of Education and Science. Architects and Building Branch. Design Note 1. London H.M.S.O. 1968.

7. RATNAIKE, J. Op. Cit.

   and see Digest V of this series by the same author.

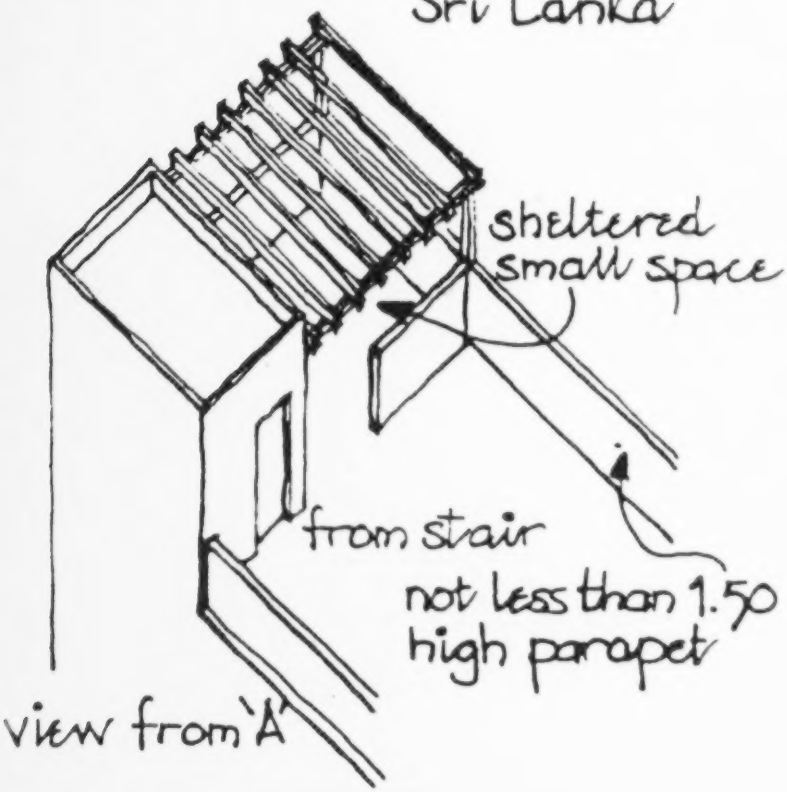
tr - mobile trolley
s - shelves
t - table
bs - bench seat



note : three small areas - 1, 2 & 3
and one larger area 'O'

Figure 25

based on an urban model in Sri Lanka



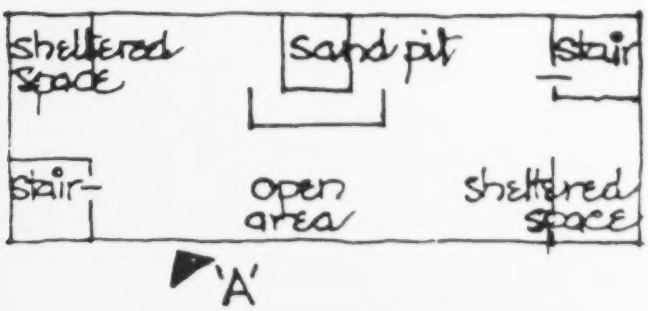


Figure 26

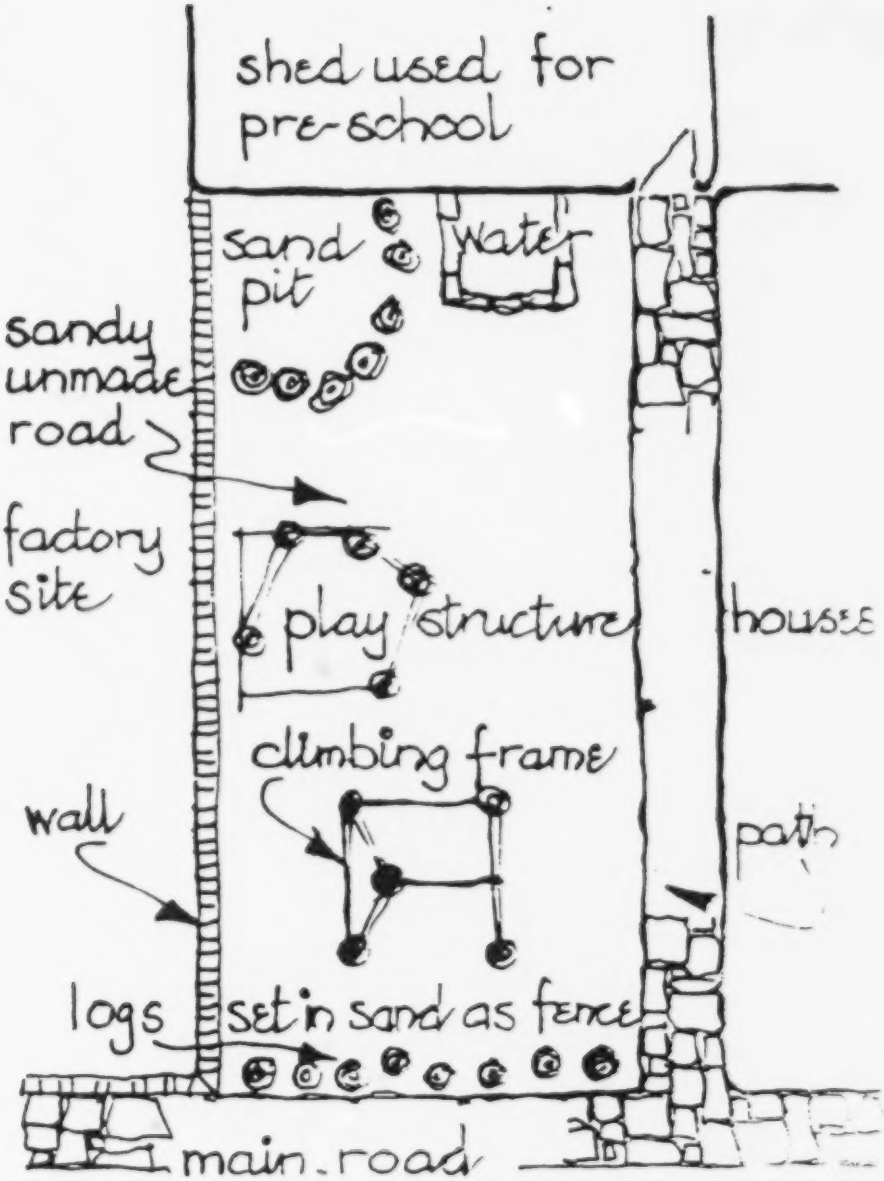

shed used for pre-school
sand pit
water
sandy unmade road
factory site
play structure
houses
climbing frame
wall
path
logs
set in sand as fence
main road

Figure 27

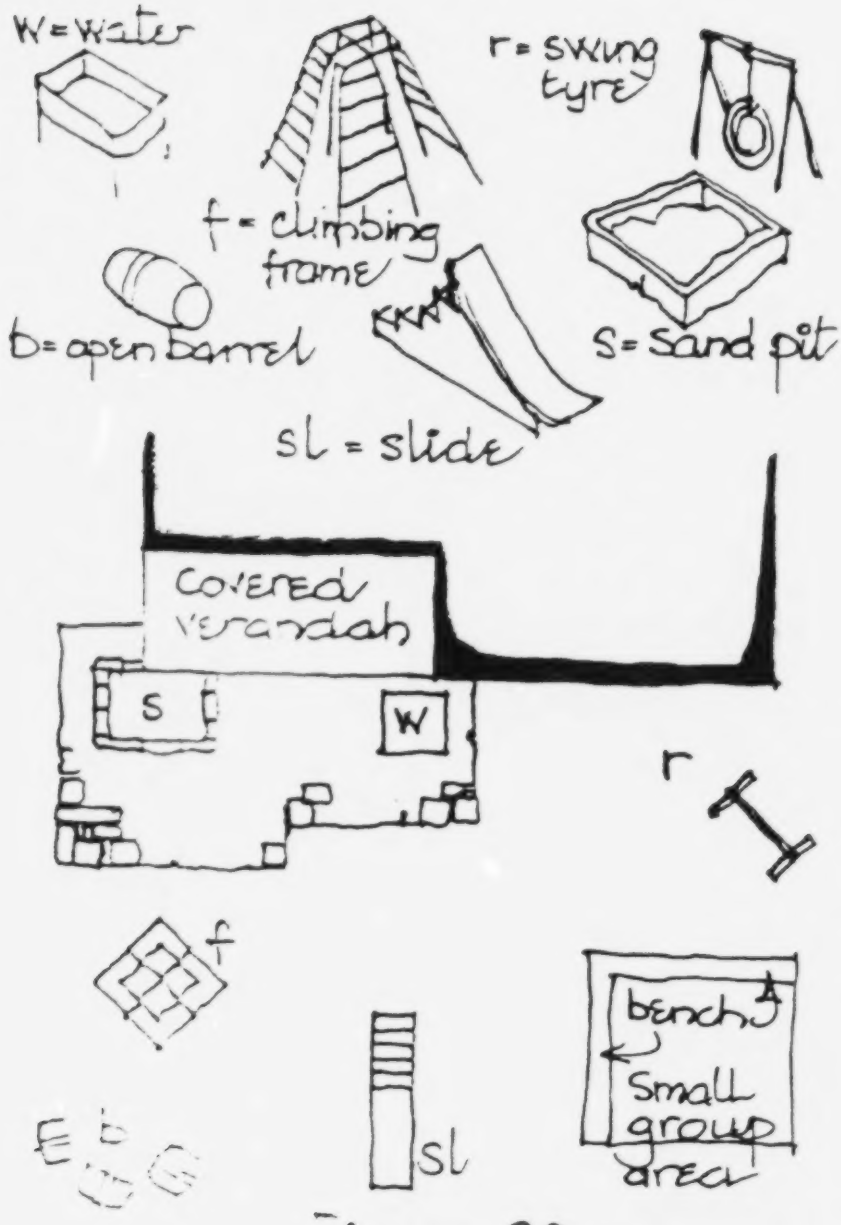

W = Water
r = swing tyre
f = climbing frame
b = open barrel
S = Sand pit
sl = slide
covered verandah
S
W
r
f
bench
Small group area
sl

Figure 28

VI

FACILITIES FOR MANAGEMENT

'Management' sounds a grand term to use for running a creche for 20 children with one nurse and, maybe, a nursing aid. Yet manage they must, and, if they are to do so effectively, they have to be made comfortable in their work-place. This can be argued in simple human terms and also, because, as salaries will comprise the greatest part of the recurrent expenditure, it is sensible to maximise the output of the investment!

1. PERSONNEL

i. The basic needs for the staff of any early childhood centre, be it home-based or a 300-place institution, are for:

- sanitary toilet facilities;
- somewhere to store personal belongings;
- a place to relax;
- space for a few files; and,
- an area to consult with colleagues, parents and adults from the community.

In a small centre, of say, 20 places, the staff room may, if space is at a premium, serve as a store, an office, a quiet space to talk with or to read to a few children, for a medical inspection room and so on.

As co-operation develops between the early childhood centre and community members - parents and other adults - a place needs to be found for them to join with the staff of the centre in planning/making simple equipment, tea-making, discussion and occasional

relaxation. Where the institution is large, the facilities for management will include offices, staff kitchen and dining room and staff common rooms, as well as staff toilets, showers and cloakroom. There may also be meeting and workrooms for staff.

ii. For centres in adapted buildings - especially if they are small centres - there is little point in attempting to quantify minimum requirements. The introduction to this chapter, together with the illustrations in section iii. below, are adequate enough. For larger centres it is useful to prescribe the minimum facilities more exactly.

For a pre-school centre[1], enrolment 60 children, where there is considerable parental involvement in activities, the facilities provided for management are:-

1 Staff and quiet room	10.0	Square	Metres
1 Parents workroom	14.0	"	"
1 Office	8.0	"	"
1 Adult toilet 1 wash-hand basin) 1 water closet)	4.0	"	"

This represents 0.43m^2 per place and 12.6 per cent of the total built area.

An 80 place centre[2] provides the following management facilities:-

Director	9.0	Square	Metres
Offices	22.5	"	"
Staff dining	22.5	"	"
Staff toilets	40.5	"	"
Staff kitchen	13.5	"	"

This represents 1.35m^2 per place and 8.29 per cent of the total built area.

Finally, a 270 place centre[3] having a staff of 50 (doctor, 30 nurses and 19 cooks, cleaners, office staff, etc.,) is provided with:-

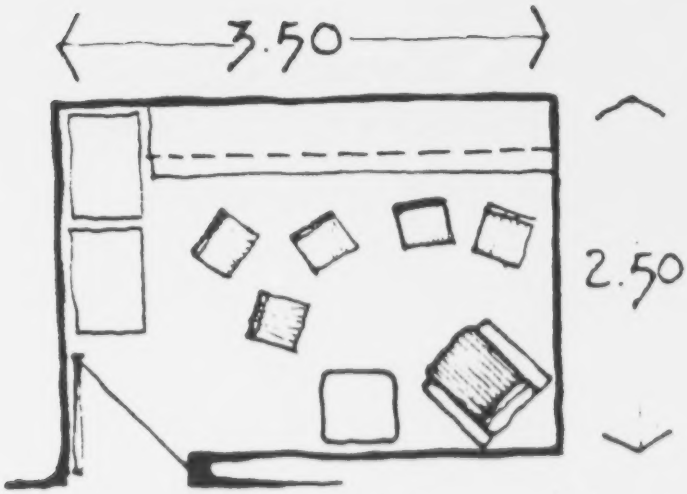
Administration	18.0	Square Metres
Meeting/Work room	36.0	" "
Director's office	18.0	" "
Toilets	25.0	" "
Staff common rooms	158.0	" "

This represents 0.94m^2 per child place and 9.01 per cent of the built area.

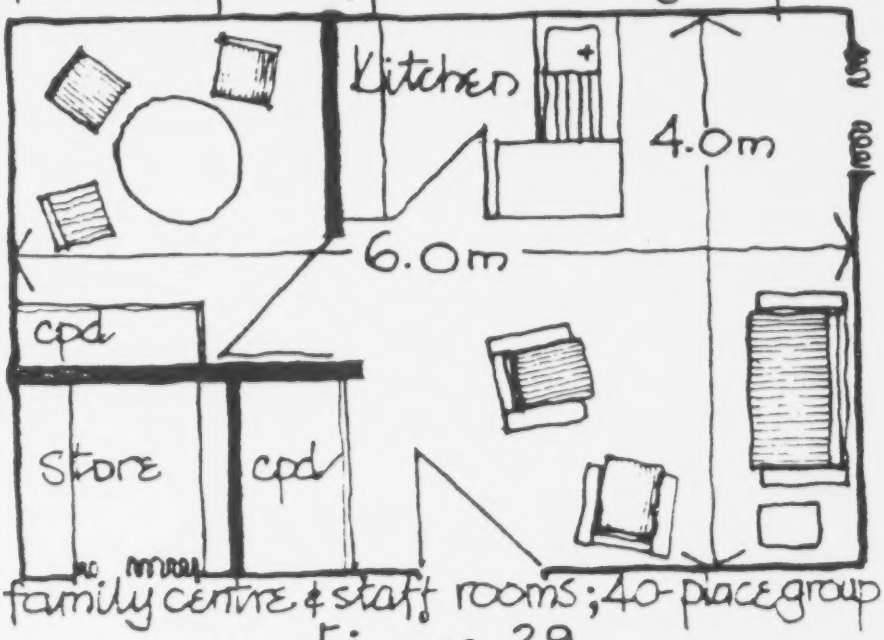
The differences in space provision between these three examples reflect their differing functions and management styles. It is not possible to be prescriptive about space needs for management in every situation. The most important point is acknowledgement of the need for facilities for staff and thorough discussion as to how best these needs may be met.

It is worth repeating the remark in the introduction to this chapter to the effect that staff are costly and if they are to give of their best, then it is important the building responds to their personal requirements, thus enabling them to function as effectively as possible.

iii. Typical staff facilities are illustrated for centres ranging in size from 20 to 270 places in Figures 29 and 30.

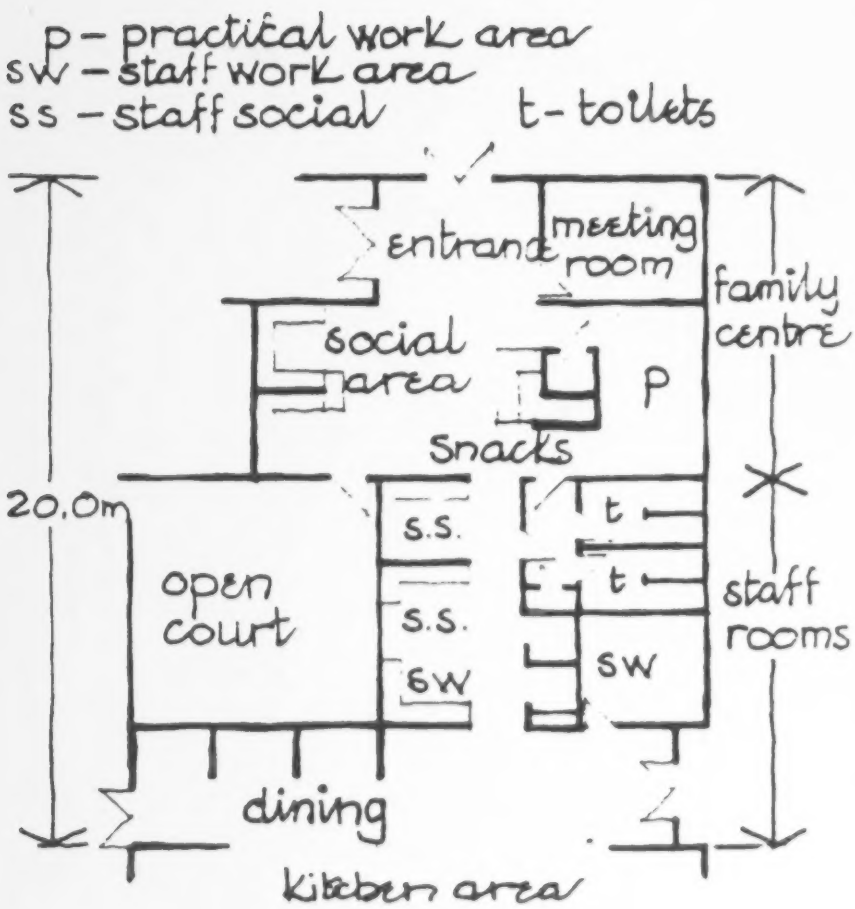


teacher's room/quiet space/store for 20-place, pre-school group



family centre & staff rooms; 40-place group

Figure 29



240 places ages 5-7 years
100 places ages 3-5 years

family centre & staff rooms;
Chaucer school U.K.

Figure 30

2. STORAGE

i. Two issues have to be discussed here. First, what is to be stored and the areas required. Secondly, the storage facility needs to be considered in relation to the users, namely, staff and children. Obviously the children should have the items they are to play with, stored at a low level where they can easily reach them.

The items to be stored fall into three broad categories:

- items for building maintenance such as brooms, soap, towels, buckets, etc.;
- items for play which are less frequently used, heavy or comprise stock for future use such spare easels, paper, paints, books, etc.;
- items in regular use by the children such as beans, balls, small stones, dried corn cobs, paper, paint, wooden blocks, books, etc..

ii. The last of these three categories of items - items used regularly by the children - are all to be stored in the spaces (inside and outside), assigned for play and already described in Chapter V, Facilities for Education, so, no additional space is required for this purpose.

As to the first two categories, it is suggested that storage space should be provided at about $0.20m^2$ per child place. In larger creches it may be necessary to store beds and bedding for which the area may be increased to $0.36m^2$ per child place. Also in a larger creche or pre-school centre, the administration unit will require its own storage at about $0.05m^2$ per child place. Storage in kitchens is included in the section dealing with this topic in Chapter IV (2. Nutrition).

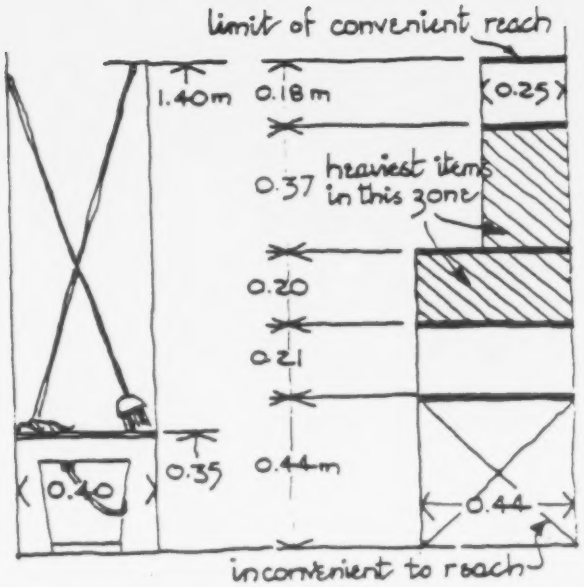


Figure 31

iii. Figure 31 illustrates storage facilities for maintenance and for less frequently used items. The storage arrangements for the children may be considered separately for the internal and outside play spaces. Indoors the most useful storage will take the form of bins or boxes with small wheels or castors so that the children can move them about. Figure 32 illustrates some examples of this type.

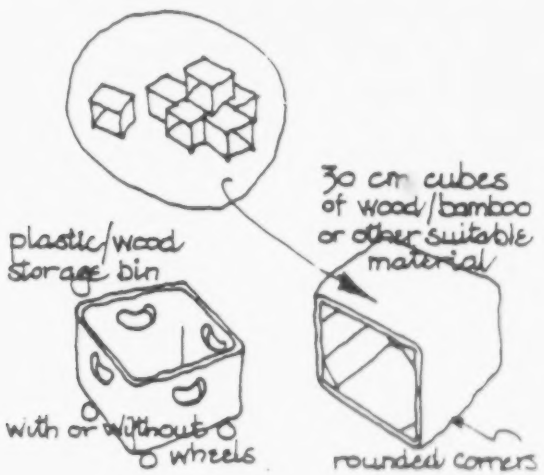


Figure 32

Secondly the indoor space can be furnished with divider units which comprise shelves. These too may be on wheels. They are an important item of furniture as, in addition to providing storage of play items, they can be used as the screens which may break a large play area into one which has the smaller, quiet areas which are essential (Chapter V). Figure 33 shows examples of divider units.

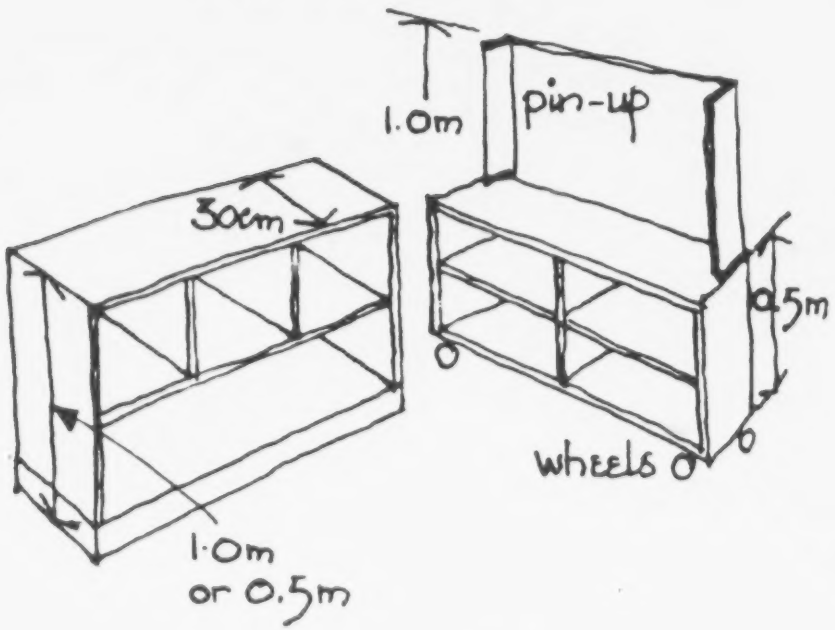


Figure 33

There is also a variety of other storage units such as shelving for tote trays for the older children, trolleys and so on. These are illustrated in Figure 34 while Figure 35 shows how storage units can be integrated within and sub-divide spaces.

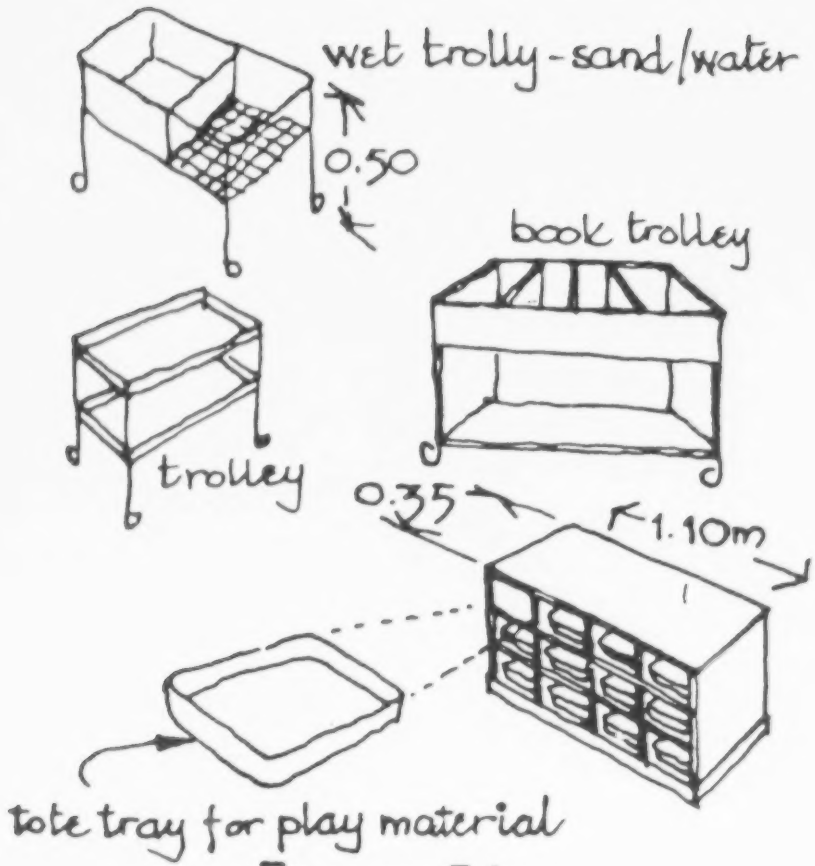

wet trolly - sand/water
0.50
book trolley
trolley
0.35
1.10m
tote tray for play material

Figure 34

space divider from a Spanish pre-school

Figure 35

Outside, on the site, there is also a need for storage too. Figures 36 and 37 show a number of imaginative ideas developed in Senegal[1].

garden storage and activity unit

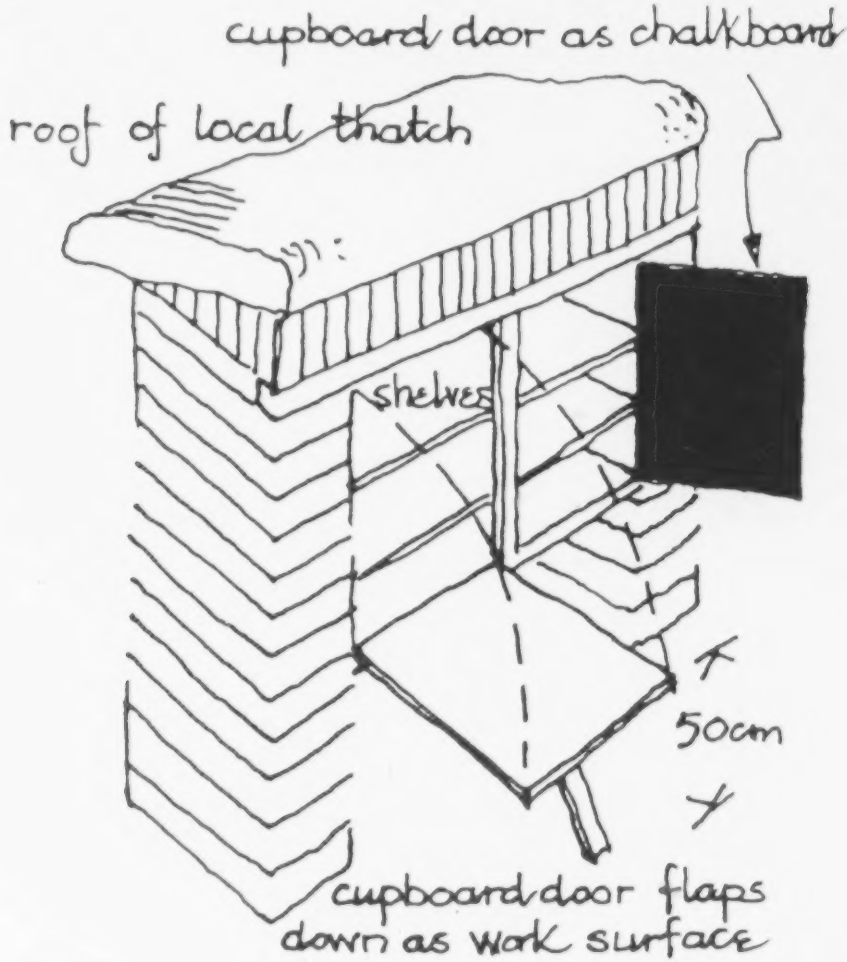


Figure 36

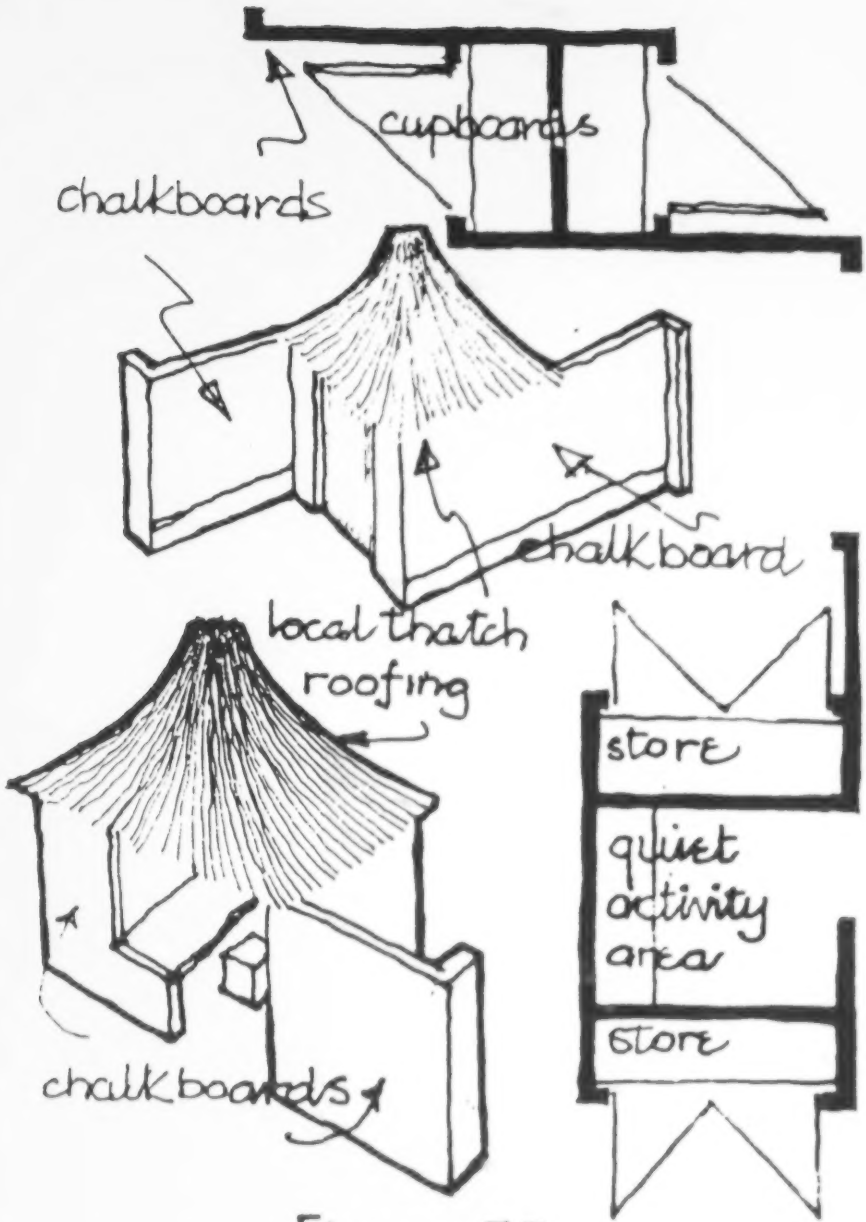

cupboards
chalkboards
chalkboard
local thatch
roofing
chalkboards
store
quiet
activity
area
store

Figure 37

Summary

The staff accommodation - staff/parents rooms/ offices/toilets/dining kitchen/etc., - will require an area of about 0.5m^2 per child place in all but the larger and more complex centres where up to 1.0m^2 per place may be required.

Space for storage of maintenance items and infrequently used, larger items, linen, beds, etc., should be about 0.2m^2 per child place.

References

1. UNITED KINGDOM. Building for nursery education. Department of Education and Science; Architects and Building Branch. Design Note 1. H.M.S.O., London, 1968.

2. PERNE, E. et GALAMB, E. Les plans de constructions de crèches en Hongrie et dans quelque pays socialistes. Santé publique, Revue Internationale, Vol.13, No. 1, 1970.

3. HAMEL, J.P. and SHEATH, R.H. Op. Cit.

4. HORSTEN, T. Op. Cit.

VII

STRATEGIES FOR HOUSING EARLY CHILDHOOD CARE AND EDUCATION PROGRAMMES

In the three previous chapters, the functional components of creche and pre-school facilities have been discussed, each in isolation. In this chapter they are considered integrated and in relation to each other in a variety of resource-based situations.

The main focus is, as will be evident, on no cost/low cost solutions to the problems of housing ECCE.

Towards the end of this chapter some attention will be paid to purpose-built facilities but then mainly to the simplest ways of constructing in stages, using local materials and providing minimum areas to meet the essential needs.

1. IN THE HOME (i.e. home proper of the young child and also the home-based centre)

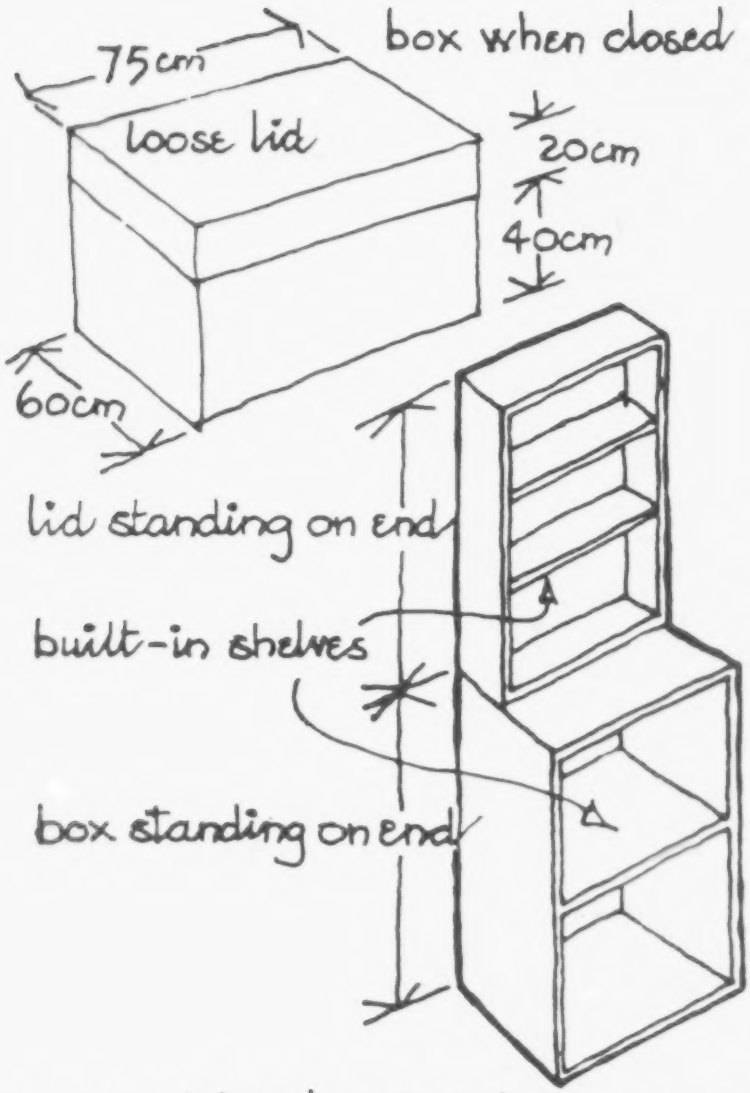
There seems to be a general agreement, based now on not inconsiderable experience that, given a little training in health, nutrition and child development, the mother or surrogate mother in her own home is one of the most effective agents for managing early childhood programmes for small groups of up to four or five children (for example see documents listed under references Nos. 2, 3, 4, 5).

The home itself is a 'no-cost' solution to the problem of housing. Where, however, 'no-cost' solutions are sought there will usually be conditions of extreme governmental, financial stringency, the population too is likely to be very poor and homes correspondingly simple. In such circumstances a good case will often exist, not only for providing simple training for the mother, but also supplying her with a few basic items which will result in more effective achievement of programme objectives. Conditions and needs will, of course, vary from place to place.

As health and nutrition are two important ECCE objectives, it may be that simple health kits and food could be distributed to homes in home-based programmes.

This suggests the need for simple storage. The mother will be taught, as part of her simple training, to make teaching materials. These too will need to be stored. Where mothers are literate, records may need to be kept.

Remembering that most poor homes have little furniture - often only a few mats and, perhaps a box for personal valuables and special clothing kept for festive occasions, it seems useful to provide each mother in a home-based programme with a small, but strong wooden box and a few shelves to store the materials used in her work with the children daily in her care. It is fundamental that such items are made as cheaply as possible for home-based programmes are and will increasingly be of very wide application - perhaps involving thousands of homes. The total expenditure has to be less than that of providing formal facilities in adapted or purpose-built buildings. Thus communities may be encouraged to meet for sessions at which local materials are used to make the boxes and shelves.



made of local materials, e.g. wood, bamboo, woven matting on frame, etc.

Figure 38

There are other approaches as, for example, that supported by the Bernard van Leer Foundation at Jos in Northern Nigeria[6] where out-of-school youths are taught useful skills at a vocational training centre where their training is production-oriented to the manufacture of items for ECCE, primary schools, local hospitals, and so on.

As will be seen subsequently in this chapter, there is a rich local community resource that can be tapped for ECCE programmes and kits for home-based projects will often be found a good start-point for encouraging the wide-spread development of early childhood projects.

Figure 38 illustrates an example of the sort of simple kit that could be provided. Local designers would produce many more examples making use of the unlimited sorts of materials and skills available.

2. IN UNUSED PREMISES

The criteria for the selection of unused premises for use as early childhood centres - creches or pre-school - are :

- *a good or easily repairable roof;*
- *sound structure - especially in areas at risk from earthquakes;*
- *requiring not more than minor repairs and simple redecoration;*
- *having a built area roughly equivalent to that suggested in previous chapters of this Digest;*
- *having a garden or other play space matching the built area;*

- *access to a source of potable water - preferably on the premises but, if not, within easy carrying distance;*
- *toilets or, if none exist, sufficient space to built outside closets;*
- *no rent or low rent.*

It is most unlikely that every building considered will meet all these criteria and some compromises may have to be made - especially in urban areas. Thus, for example, an unused building may be found suitable but it may have no outside garden. Can a cul-de-sac safely be used for play? An empty but otherwise suitable garage may have neither toilets nor water. If the group of children is small, can water be brought in a hose-pipe from a neighbour's house for a daily filling of storage vessels and is it possible to use a bucket latrine which can be emptied daily? Neither are extreme cases. Imagination will almost always have to be used in suitably adapting unused premises.

Figure 39

ECCE programmes run in disused buses (Figure 39), garages, on building sites, in old homes (Figure 40), in orchards (Figure 41) and in flats of housing estates (Figure 42) - to list but a few examples.

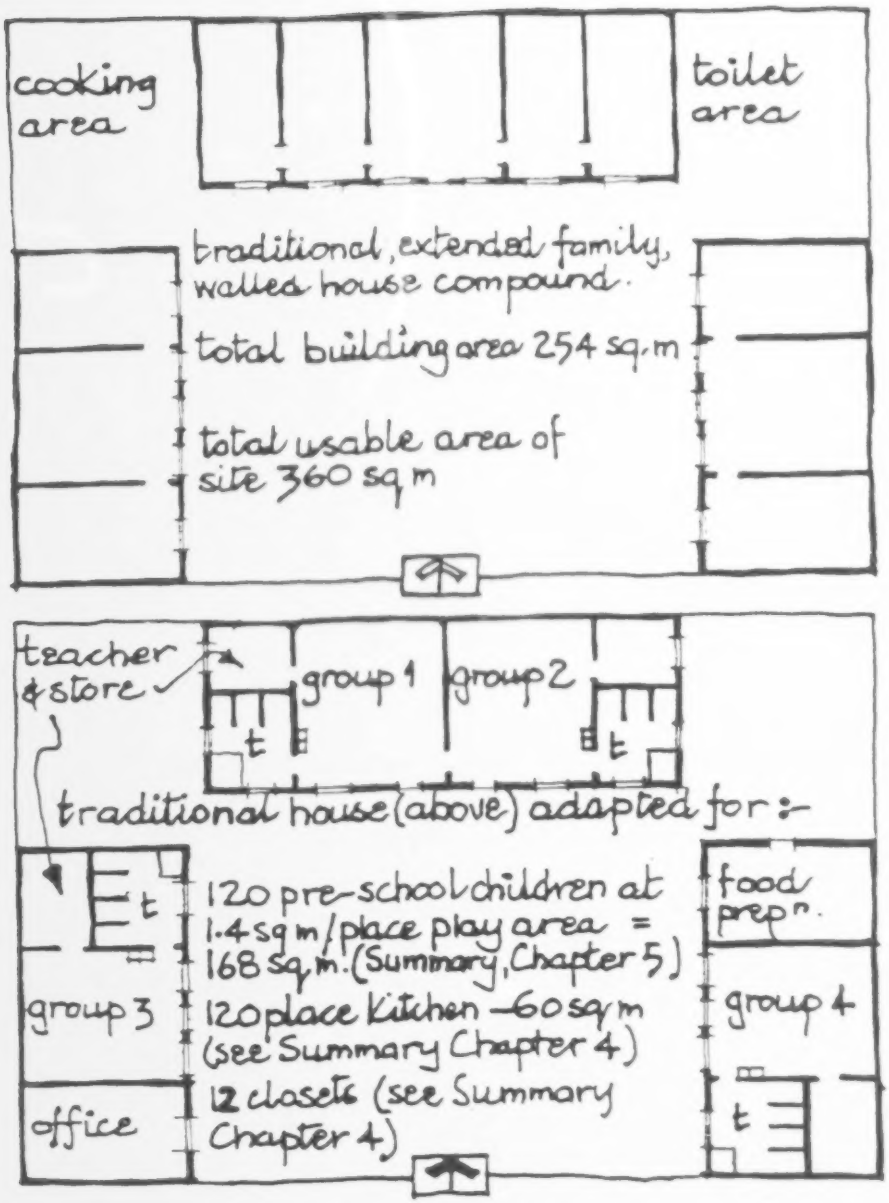

cooking area
toilet area
traditional, extended family, walled house compound.
total building area 254 sq.m
total usable area of site 360 sq.m
teacher & store
group 1
group 2
t
t
traditional house (above) adapted for :-
t
120 pre-school children at 1.4 sq m/place play area = 168 sq.m. (Summary, Chapter 5)
group 3
120 place Kitchen - 60 sq m (see Summary Chapter 4)
office
12 closets (see Summary Chapter 4)
food prepn.
group 4
t

Figure 40

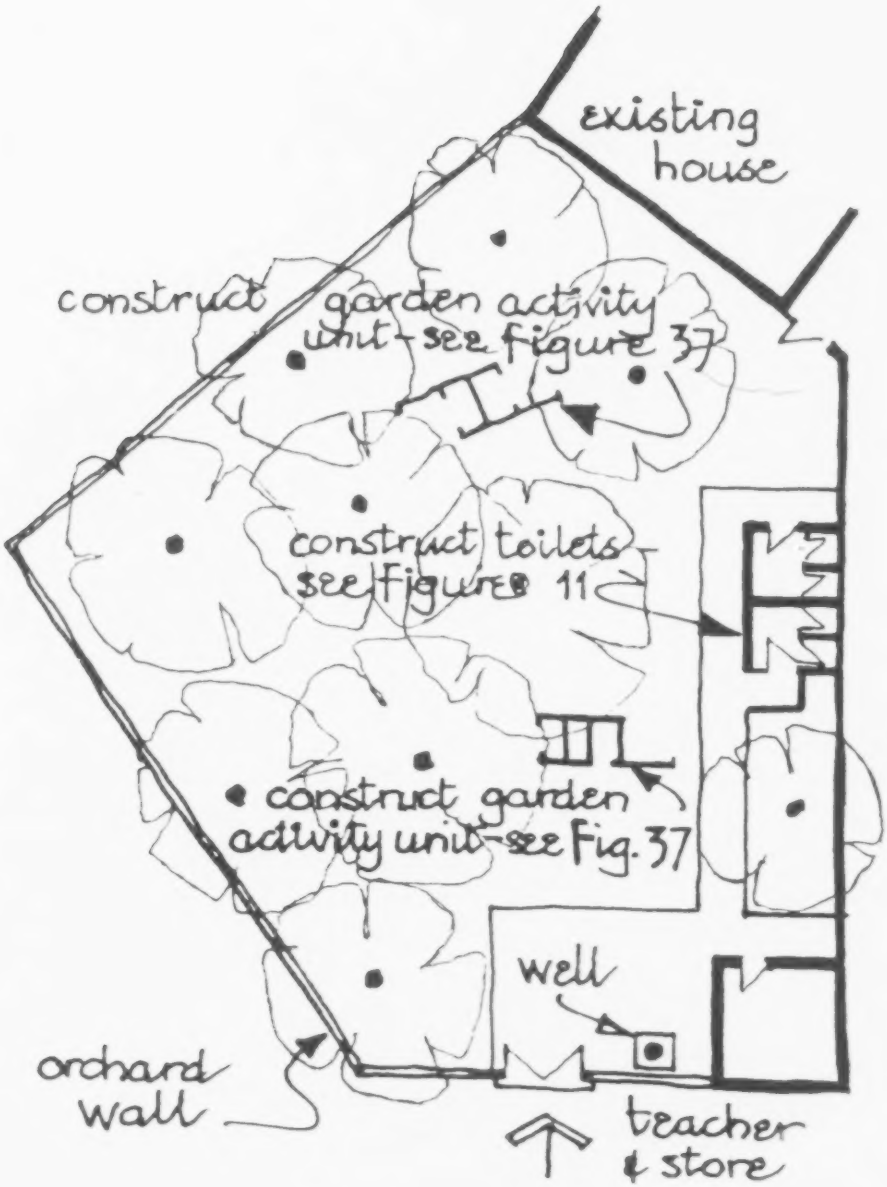

existing house
construct garden activity unit - see figure 37
construct toilets see figure 11
construct garden activity unit - see Fig. 37
well
orchard wall
teacher & store

Figure 41

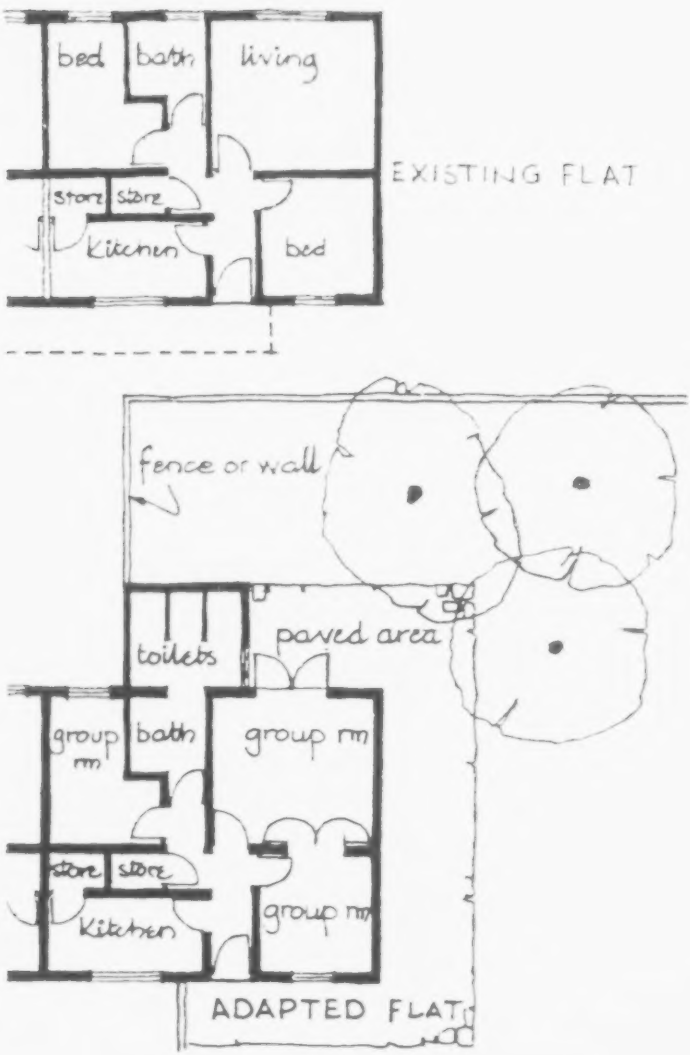

bed
bath
living
EXISTING FLAT
store
store
Kitchen
bed
fence or wall
toilets
paved area
group rm
bath
group rm
store
store
Kitchen
group rm
ADAPTED FLAT

Figure 42

Once the unused facility has been selected, it is a good idea to measure all the spaces in it and draw the building on a piece of squared paper. From the drawing, it will then be possible to decide on how each space in the building is to be used and, if necessary to decide on minor alterations and on how the spaces can be sub-divided into major common areas for play and quiet areas for children to work on finer development activities. A few simple dividers of the sort described in a previous chapter may help in this.

3. IN UNDER-USED PREMISES

In most countries there are premises which, for one reason or another, are under-used. The village hall or meeting place is usually vacant in the day, though there may be gatherings there in the evenings. The sala (preaching hall) of temples, the entrance lobbies to mosques or mosque cloisters, storage sheds, no longer used, on tea and rubber estates, church halls, rural primary schools where the enrolment has dropped as a result of population movement to towns and so on. The advantage of some of these facilities is that they are community property and so may be obtained, often rent-free. The disadvantage is that, as many of them are used for other purposes in the evenings or at weekends or for festivals, they have to be taken and used "as found".

This, in turn, means that the equipment and furniture for the ECCE activity has to be designed to be easily movable so it can be stored away at the end of every day.

In the case of unused classrooms in a partially used primary school or of any other government or local authority property, alterations can usually be made in consultation and with the assistance of the government building agency. (Figure 43 illustrates adaptation of a primary school, unused due to population movement and Figure 44, of the ground floor of a primary school which is housed at the first floor.

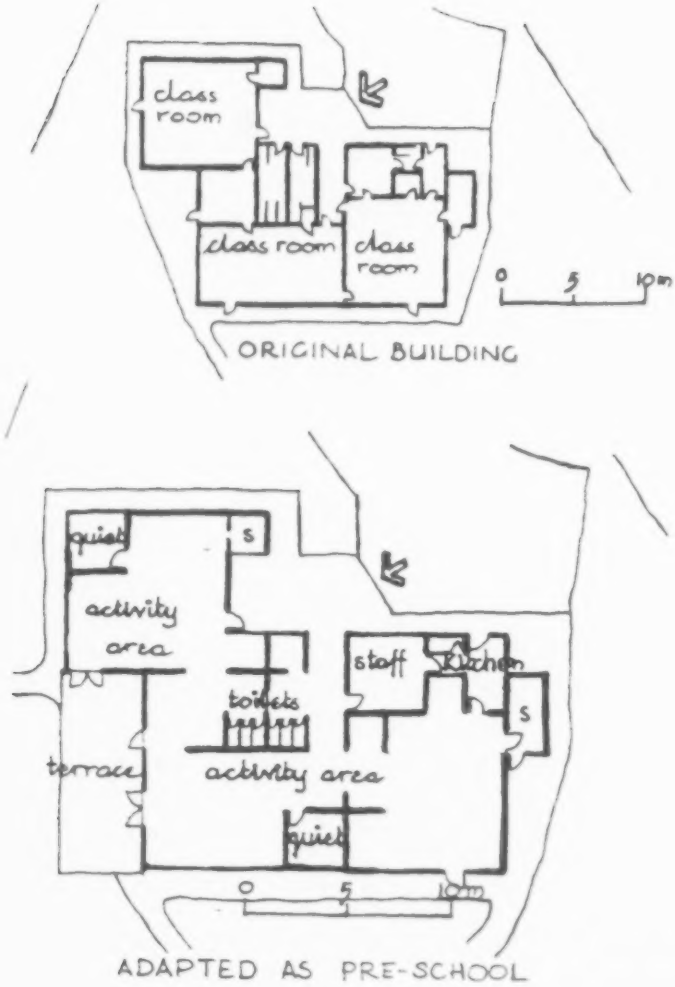

class room
class room
class room
0 5 10m
ORIGINAL BUILDING
quiet
S
activity area
staff
kitchen
toilets
S
terrace
activity area
quiet
0 5 10m
ADAPTED AS PRE-SCHOOL

Figure 43

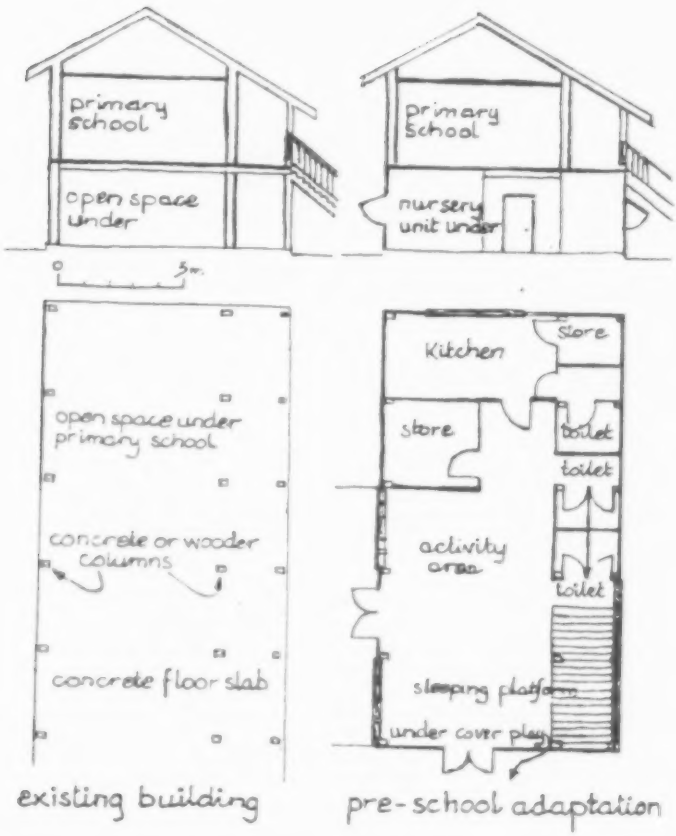

primary school
open space under
primary school
nursery unit under
5m.
open space under primary school
concrete or wooder columns
concrete floor slab
Kitchen
store
store
toilet
toilet
activity area
toilet
sleeping platform
under cover play
existing building
pre-school adaptation

Figure 44

4. PURPOSE-BUILT PREMISES

a) Using local materials and methods of construction

Where governments build, then for reasons of public policy, they tend to do so using materials and methods commonly employed for urban building. Thus, for example, where a government primary school is constructed in a rural area where bamboo mat walls and palm thatch are in use for dwellings, the school may be built of brick with a concrete floor and reinforced concrete roof. Where there are severe financial constraints, money cannot be found for large-scale construction for ECCE programmes based on such expensive building practices.

> *The alternative is thus to use local building materials and practices and, wherever possible, further reduce costs by involving the local community in the construction work. This approach has been successfuly adopted in, among other places, Peru, Chile, Senegal and Kampuchea.*

It has to be acknowledged that use of local materials and construction practices are rejected by government construction agencies because the resulting buildings require frequent repair and are often structurally insecure. In one African city for example, the mud roofs of over 200 dwellings collapsed in heavy rains during the 1960's. Such an event would be a disaster if it happened in a creche full of children. Local construction, too, is often subject to collapse or severe damage during earth tremors.

The need for frequent maintenance where local materials and consturction are used is not a serious matter, for people of the community are used to repairing their houses and could easily repair an ECCE centre. Basic constructional defects are more serious but, again, if they can be identified, then a solution can usually be found. There are, for example, some very simple rules for constructing small buildings that are safe in earthquake-prone areas[7] and cheap thin sheet plastic below the top

construction small buildings that are safe in earthquake-prone areas[7] and cheap thin sheet plastic below the top layer of mud in a mud roof will exclude rain and prevent the roof becoming so heavy with absorbed water that it collapses.

> *It will always be worthwhile making enquiries concerning improved indigenous building techniques from the national building research station. Most stations include this topic as a major component of their work-programmes.*

b) Building in stages

Many communities might be discouraged at the prospect of finding the materials for and constructing a complete, new early childhood centre, for, say 60 children. This might involve some 200 square metres of construction - floors, walls, doors, windows, roof and toilets. Such a community might well, however, be willing to contribute materials and labour to make a start on the building, adding components from time-to-time.

A good example is provided by the efforts of one community of an African country as illustrated in Figure 45. The work started by casting a concrete floor slab, erecting poles and putting on a roof. The centre then opened. Some while later a single room was built under the roof. Then a kitchen was added. Progressively a pit toilet was built, the site was fenced, trees were planted for shade, a verandah was added and finally arrangements were made to collect rainwater and a well was sunk. After a few years, the community had produced a functional building for its ECCE programme. Although in retrospect, one might question the order in which the various components were added, one could not question the effectiveness of the approach which owed its success to avoiding placing too great a strain on the community resources of time and materials.

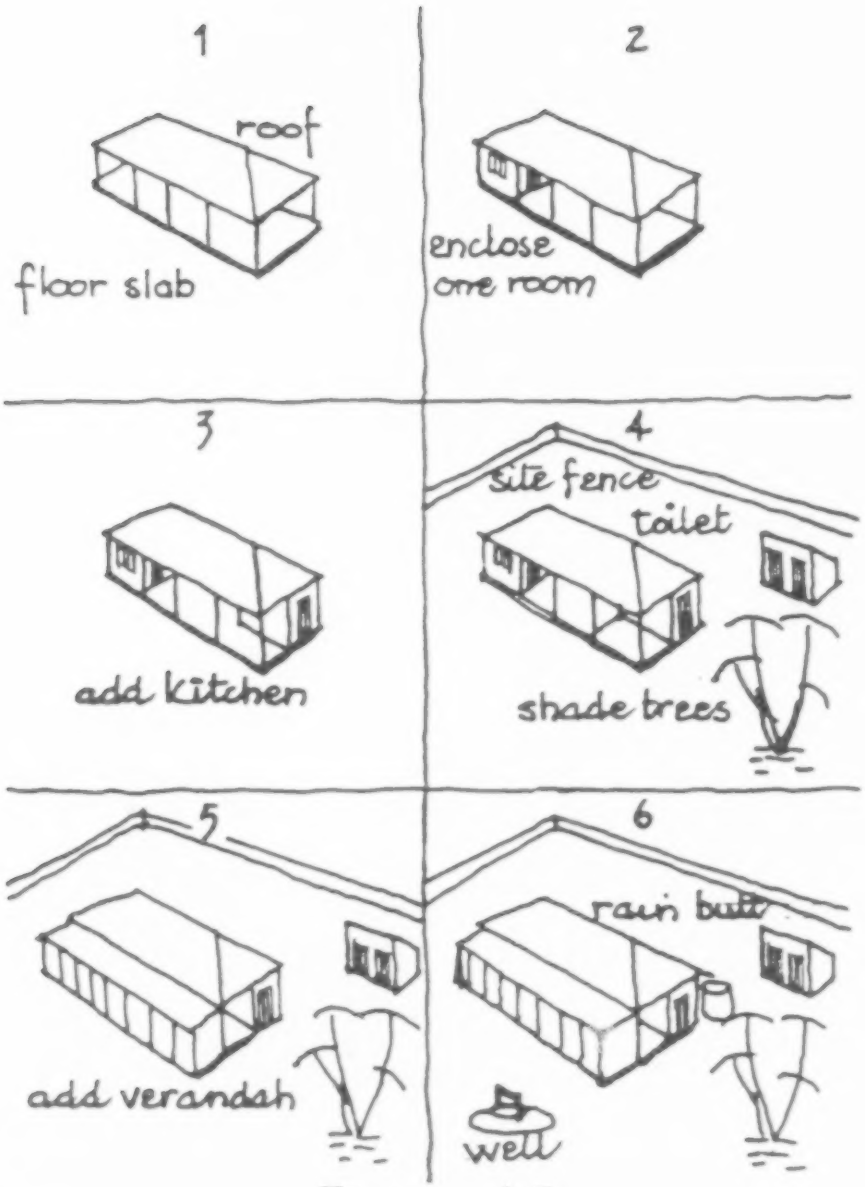

1
roof
floor slab
2
enclose
one room
3
add kitchen
4
site fence
toilet
shade trees
5
add verandah
6
rain butt
well

Figure 4.5

c) Conventional building

The design of a conventional, purpose-built ECCE centre will require the services of an architect who will charge a fee. The architect will require to be briefed - that is to be given a careful instruction as to the function of the building, the planned enrolment and staff establishment and the maximum cost. It would be important, for architects who know nothing of ECCE, to read Digests in this series. In countries where there are no educational furniture industries, then the architect should be commissioned to design not only the site layout and building, but also all the furniture.

Modern ECCE programmes are usually of wide application and involve many buildings. The services of the architect should, where possible, be used to prepare a 'type' design which can be used for all new centres in the area. This will reduce design effort and costs.

Examples of purpose-built facilities from a number of countries are given in Figures 46, 47, 48, 49, 50 together with space analyses.

References

1. For a detailed discussion of Family Educational Units conducted by a mother or a surrogate mother, see Education of and by the Family: Practical Guidelines for establishing Family Educational Units. Digest N° VII of this Series.

2. Digest No. I in this Series, p. 37 and Digest No. II pp. 29 and 30.

3. RATNAIKE, J. Op. cit.

4. BERNARD VAN LEER FOUNDATION, Current programmes. The Hague, The Foundation, November 1988.

5. KHAIRUDDIN, Y. OOI GIOK LENG AND FATIMAE HAMID-DON Child care survey. Ministry of Social Welfare Services, Malaysia, and UNICEF, 1983.

6. BERNARD VAN LEER FOUNDATION. Op. cit.

7. DALDY, A.F. Small buildings in earthquake areas. Garston (U.K.), Building Research Establishment, Department of Environment, H.M.S.O., 1972.

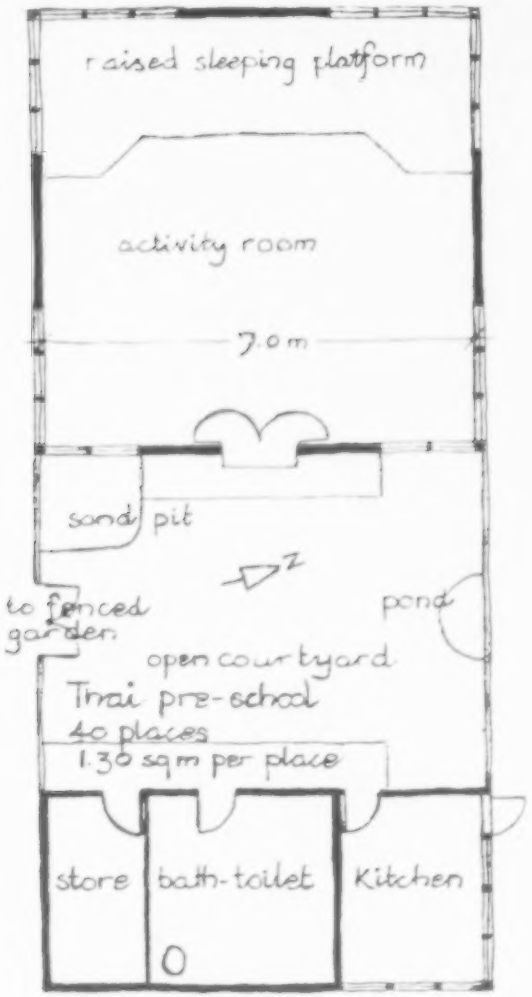


Figure 46

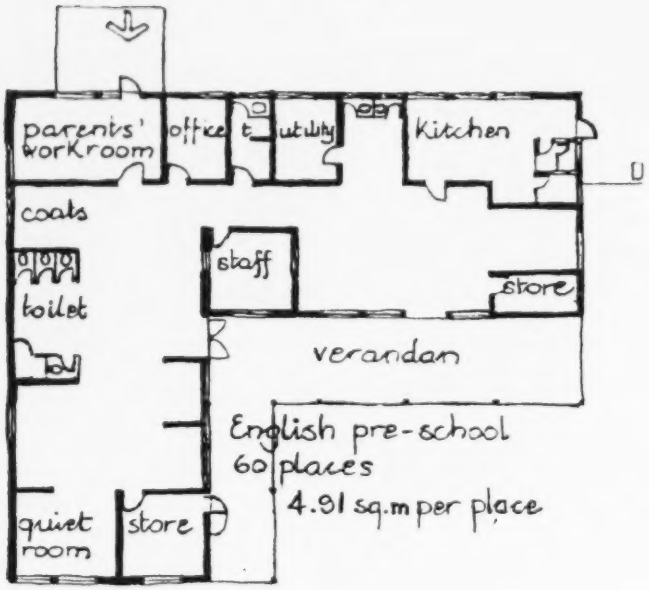

parents' workroom
office
t
utility
Kitchen
coats
staff
store
toilet
verandah
English pre-school
60 places
4.91 sq.m per place
quiet room
store

Figure 47

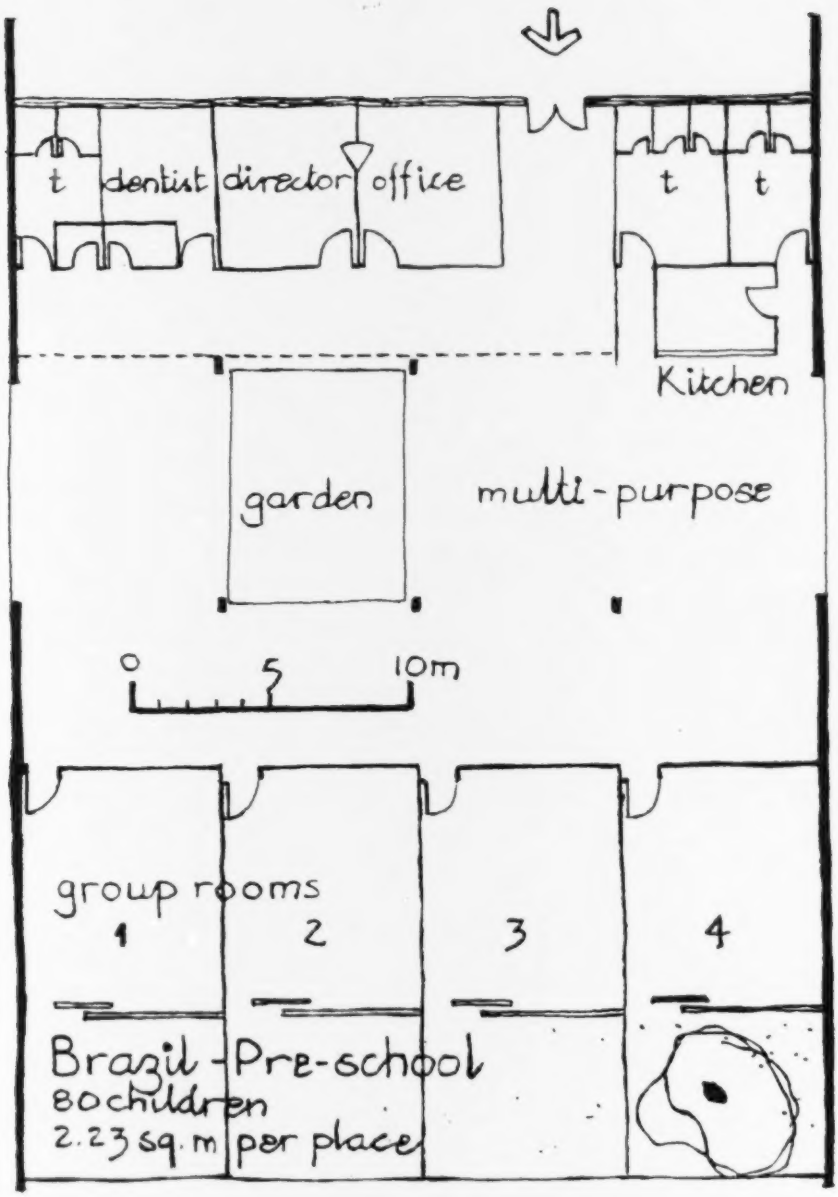

t
dentist
director
office
t
t
Kitchen
garden
multi-purpose
0
5
10m
group rooms
1
2
3
4
Brazil - Pre-school
80 children
2.23 sq. m per place

Figure 48

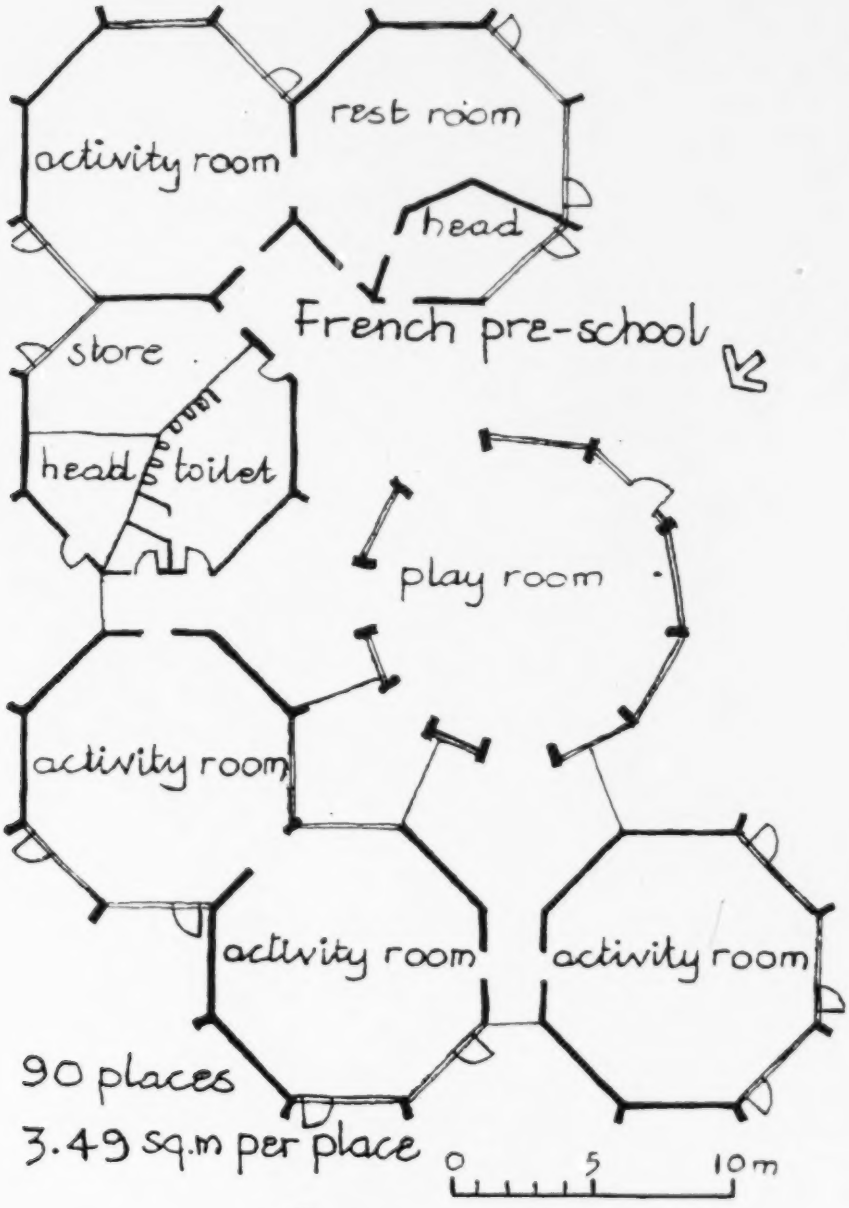

activity room
rest room
head
French pre-school
store
head
toilet
play room
activity room
activity room
activity room
90 places
3.49 sq.m per place
0
5
10m

Figure 49

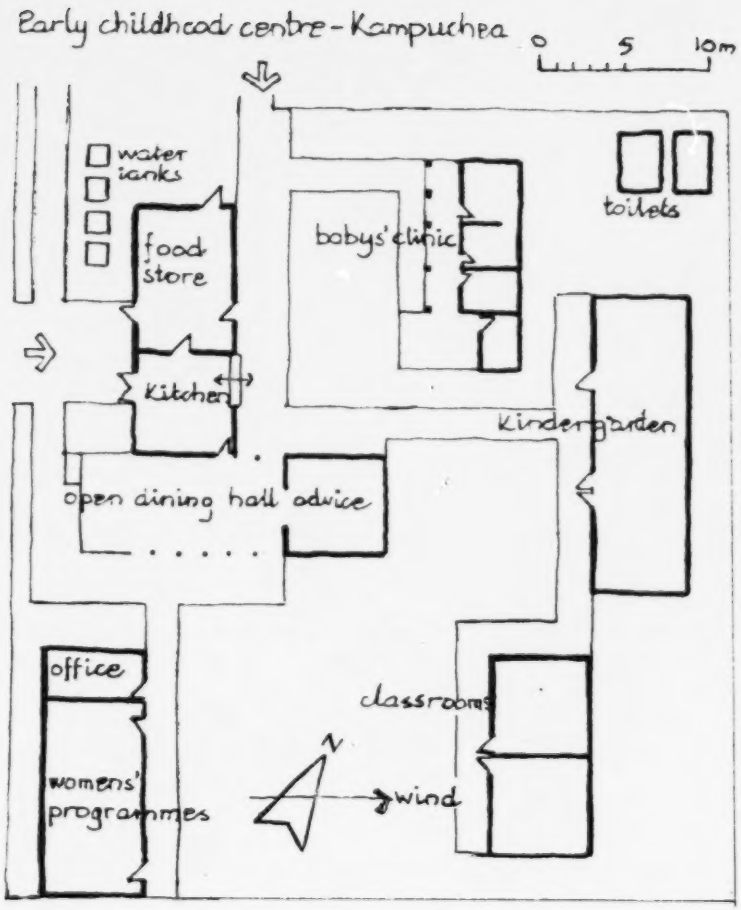

Early childhood centre - Kampuchea
0 5 10m
water tanks
food store
kitchen
babys' clinic
toilets
kindergarden
open dining hall advice
office
womens' programmes
classrooms
N
wind

Figure 50